

FEBRUARY, 1948

# CHEMICAL PROCESSING

## PREVIEW

The Magazine of  
PROCESSING, ITS CONTROL AND DEVELOPMENT

*In this issue*

149 Articles

**NEW SOLUTIONS OF PLANT PROBLEMS**  
5 actual "Installation-type" articles  
of "how it was done better".

**MATERIALS . . .** 17 reports on developments in materials that make for better processing.

**MATERIAL HANDLING . . .** 11 examples of improved ways to handle materials in process.

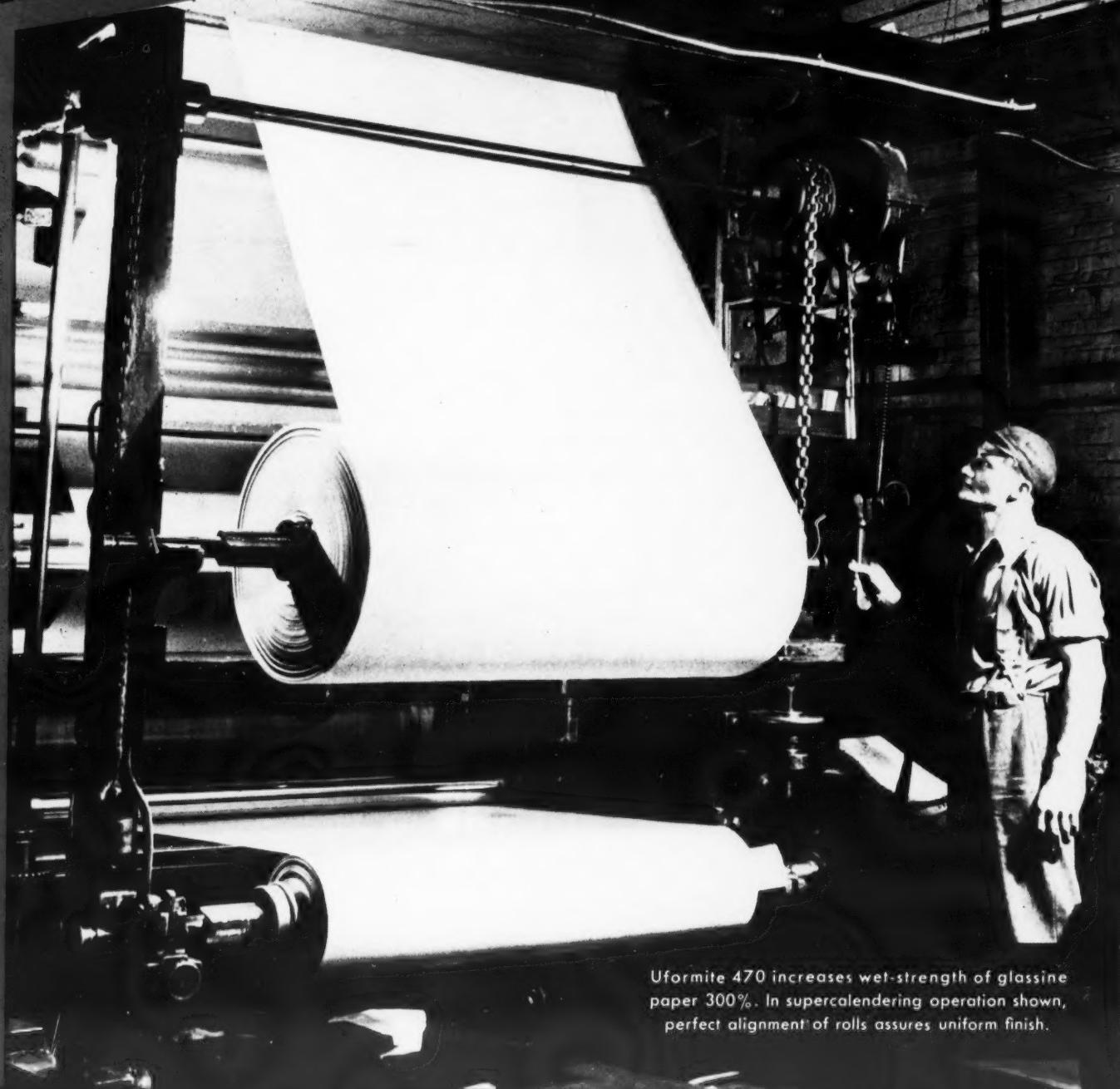
**PROCESS INSTRUMENTATION . . .** 9 reports on better process control through instruments.

**IDEAS . . .** 5 Ideas gleaned from this or other industries that offer possibilities in chemical processing.

**REVIEWS . . .** 13 "quick looks" at interesting articles in contemporary publications.

**NEW LITERATURE . . .** 47 reviews of current literature describing process equipment and materials.

**PROCESSING EQUIPMENT . . .** 42 articles on developments in equipment to aid processing operations.



Uformite 470 increases wet-strength of glassine paper 300%. In supercalendering operation shown, perfect alignment of rolls assures uniform finish.

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Buffalo, N. Y.  
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Deming, N. M.  
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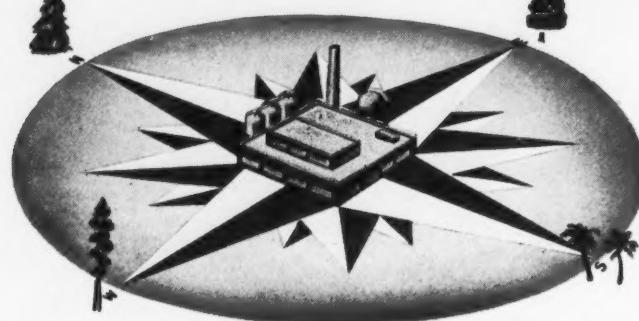
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PULASKI WORKS  
Pulaski, Va.

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"That's Interesting"

### Florida to Supply Quantities of Ilmenite

The Du Pont Company has signed a long term lease on ilmenite bearing lands with the state of Florida, providing a large supply of material formerly secured almost entirely from foreign sources. The black ore will be used in the company's plants in manufacture of white titanium pigments.

### Now a Guy Can Switch to His Own

There are reports of a miniature distillery, with a daily capacity of 7½ gallons of 190 proof alcohol from three bushels of corn. The idea is that a farmer may want to produce his own "fuel" from defective fruit and farm wastes. (R-B-H Dispersions—Bound Brook, N. J.)

### Magnetic Drain Plugs Trap Metal Particles

Drain plugs with permanent magnets anchored in them which trap and hold harmful metal particles that may be present in the lubricant are now available for various Ford year models. These include oil pan drain plugs for 1937 Model V-8's; insert plug for use with regular oil pan drain plugs in '42-'46 six cylinder models; a differential drain plug for '36-'47 cars. (Ford News Bureau, Dearborn, Mich.)

### Probably 30% of All Fasteners Used In Repair, Maintenance

Perhaps as much as 30% of all fasteners manufactured go into rehabilitation and repair work in many fields of industry. The standardization achieved during the last thirty years was of vital importance during the war when variance from common standards would have been fatal. The industry as a whole probably produces some 23,000 separate items of interest to distributors. This is small compared to the 200,000 that are regularly listed and available.

Blind riveting has been one of the welcome wartime developments in the fastening field. Delicate materials that shatter under the blows of a pneumatic hammer or riveting gun are now successfully riveted. Blind riveting is used effectively in attaching door hinges to stainless steel refrigeration units and in installing metal insulation retainer sheets in inaccessible locations. From Fasteners—Vol. 4—Number 3. American Institute of Bolt, Nut and Rivet Manufacturers, Hanns Bldg., Cleveland 15, Ohio.

For more information on product at left, specify CP 3906  
see information request blank between pages 2-3.

# For More Information

about products described in this issue check this sheet

Every product described in this issue is listed on this Sheet — Check items that interest you, fill in your name and address on the reverse side of this Sheet and mail to publisher. Information comes direct to you, without obligation.

Tear Off Here

✓ Key	Product	✓ Key	Product	✓ Key	Product	✓ Key	Product
<input type="checkbox"/> 3906	Chemicals	<input type="checkbox"/> 3946b	Bromine Booklet	<input type="checkbox"/> 3990	Bulldozer-shovel Model 14	<input type="checkbox"/> 4038	"Y" & Angle Valves (Bul. 615)
<input type="checkbox"/> 3907	Distillation Equipment	<input type="checkbox"/> 3947	Liquid Sulfur Dioxide	<input type="checkbox"/> 3991	Sheaves & Pins (Bul. 347)	<input type="checkbox"/> 4037	Squirrel Cage Motors (516-D)
<input type="checkbox"/> 3908	Porcelain Valves	<input type="checkbox"/> 3948	Welding Rods 14FC	<input type="checkbox"/> 3992	Material Handling Book	<input type="checkbox"/> 4038	Synthetic Resins (Form 951)
<input type="checkbox"/> 3909	Bags & Filling Machines	<input type="checkbox"/> 3949	Silvacon	<input type="checkbox"/> 3993	Flower Catalog 30	<input type="checkbox"/> 4039	Flexible Couplings
<input type="checkbox"/> 3910	Porcelain-lined Equipment	<input type="checkbox"/> 3950	Adhesive Operation Data Sheet	<input type="checkbox"/> 3994	Centralized Lubrication	<input type="checkbox"/> 4040	"Controlled Heat" Folder
<input type="checkbox"/> 3911	Variable-speed Transmission & Motor Pulleys	<input type="checkbox"/> 3951	Adhesive 1711-R	<input type="checkbox"/> 3995	Quartz-Aluminum Monites	<input type="checkbox"/> 4041	Vacuum Cleaner (Bul. 112D)
<input type="checkbox"/> 3912	Processing Equipment (Specify Data Desired)	<input type="checkbox"/> 3952	"Sil-Frode" Electrode	<input type="checkbox"/> 3996	Plug Gating Design Valve	<input type="checkbox"/> 4042	Thermodynamics (Part 2, "Chemical Process Principles"
<input type="checkbox"/> 3913	Swivel Joints	<input type="checkbox"/> 3953	Monochloroacetic Acid (752)	<input type="checkbox"/> 3997	Ni-Rod Welding Rod	<input type="checkbox"/> 4043	Sig. vs. Belt Length (Bul. 2170)
<input type="checkbox"/> 3914	Compressors	<input type="checkbox"/> 3954	HFN Labeling Gum	<input type="checkbox"/> 3998	Stainless San-I-Tanks	<input type="checkbox"/> 4044	Flange Lock Fittings
<input type="checkbox"/> 3915	Magnetic Separators	<input type="checkbox"/> 3955	Plasticizers Booklet 5882	<input type="checkbox"/> 3999	Calrod Heaters	<input type="checkbox"/> 4045	Booklet — "The General Box"
<input type="checkbox"/> 3916	Black Liquor Meter	<input type="checkbox"/> 3956	Carboxymethylcellulose	<input type="checkbox"/> 4000	Vacuum Pumps	<input type="checkbox"/> 4046	Lubricated Plug Valves
<input type="checkbox"/> 3917	Morganite Bearings	<input type="checkbox"/> 3957	Sight Flow Meter (CS 10-D)	<input type="checkbox"/> 4002	Belt Lacing Boot BC 350	<input type="checkbox"/> 4047	NEU Powder (Data Sheet 3)
<input type="checkbox"/> 3918	Spray Dryers	<input type="checkbox"/> 3958	Brewery Equipment (Adv. 481)	<input type="checkbox"/> 4003	Self-Adhesive Labels	<input type="checkbox"/> 4047b	NSAE Powder (Data Sheet 2)
<input type="checkbox"/> 3919	Lead & Lead Lined Valves	<input type="checkbox"/> 3959	Organic Glucosates	<input type="checkbox"/> 4004	Stainless-Steel Fittings	<input type="checkbox"/> 4048	Contour Saw Handbook
	Folder	<input type="checkbox"/> 3960	Welding Electrodes	<input type="checkbox"/> 4005	Manometers	<input type="checkbox"/> 4049	Rapid Sand Filter (Bul. 46)
<input type="checkbox"/> 3920	Paper Stock Pump 5400P	<input type="checkbox"/> 3961	Silica Powders	<input type="checkbox"/> 4006	Recording Titrator	<input type="checkbox"/> 4050	Spray Nozzles Cat. 22
<input type="checkbox"/> 3921	Bags & Filling Machines	<input type="checkbox"/> 3962	Nopogen Agents	<input type="checkbox"/> 4007	Dial Thermometers	<input type="checkbox"/> 4051	Aluminum Ladders
<input type="checkbox"/> 3922	Synthetic Esters (Res. Bul. 101)	<input type="checkbox"/> 3963	Colloidal Attapulgite	<input type="checkbox"/> 4008	Liquid Level Gauges	<input type="checkbox"/> 4052	Oil Filters (Bul. G-C-47)
<input type="checkbox"/> 3923	Amercoat Booklet	<input type="checkbox"/> 3964	Belt Conveyor Bulletin	<input type="checkbox"/> 4009	pH Instruments	<input type="checkbox"/> 4053	Rotary Kilns (Bul. 0786368)
<input type="checkbox"/> 3924	Urea Formaldehyde Resin	<input type="checkbox"/> 3965	Freight Conveyor Bulletin	<input type="checkbox"/> 4010	Flow ratio Controller	<input type="checkbox"/> 4054	Safety & Relief Valves (Bul. 50)
<input type="checkbox"/> 3925	Coumarone Resins	<input type="checkbox"/> 3966	Drum-Karrier	<input type="checkbox"/> 4011	Duo-temp Thermometer	<input type="checkbox"/> 4055	Testing Sieve & Shaker Bul-
<input type="checkbox"/> 3926	Formaldehyde	<input type="checkbox"/> 3967	Lo-Veyore	<input type="checkbox"/> 4012	CO <sub>2</sub> Indicator	<input type="checkbox"/> 4056	latin
<input type="checkbox"/> 3926a	Isopropyl Alcohol	<input type="checkbox"/> 3968	Pneumatic Conveyor	<input type="checkbox"/> 4013	Industrial Controls (Cat. 147)	<input type="checkbox"/> 4057	Cooling Towers
<input type="checkbox"/> 3927	Acetone Cyanohydrin	<input type="checkbox"/> 3969	Multi-Tier Conveyors (4-53)	<input type="checkbox"/> 4014	Series 12000 Level Controls	<input type="checkbox"/> 4058	Bag Closer Bulletin 200
<input type="checkbox"/> 3928	Seamless Cylinders	<input type="checkbox"/> 3970	Unbalanced Load Vibrator	<input type="checkbox"/> 4015	Portable Pyrometers	<input type="checkbox"/> 4059	Lubricated Plug Valves
<input type="checkbox"/> 3929	Steel Tubing	<input type="checkbox"/> 3971	Stockpiler-Loader (No. 363)	<input type="checkbox"/> 4016	Bin Level Control	<input type="checkbox"/> 4060	Lift Truck Specifications Book
<input type="checkbox"/> 3930	Dihydronpyran	<input type="checkbox"/> 3972	Non-breakable Truck Step	<input type="checkbox"/> 4017	Laboratory Stirrers	<input type="checkbox"/> 4061	Steam Jet Ejector
<input type="checkbox"/> 3931	Peracetic Acid 40%	<input type="checkbox"/> 3973	Gas-Oil Burners (Bul. 903)	<input type="checkbox"/> 4018	"Engineered Time Controls"	<input type="checkbox"/> 4062	"Air Conditioning" (Book)
<input type="checkbox"/> 3932	NSAE Powder (Wetting Agent)	<input type="checkbox"/> 3974	Stak-Rak Stacking Pallet	<input type="checkbox"/> 4019	Pneumatic Transmitters	<input type="checkbox"/> 4063	Speed Reducers Cat. 300
<input type="checkbox"/> 3933	Beckol Solution (P-470)	<input type="checkbox"/> 3975	Materials Handling	<input type="checkbox"/> 4020	Humidity Indicator	<input type="checkbox"/> 4064	Radiomatic Sighting (F-2080)
<input type="checkbox"/> 3934	Chlordane Solubilizer	<input type="checkbox"/> 3976	Electric Hoist	<input type="checkbox"/> 4021	Conductivity Cell	<input type="checkbox"/> 4065	Steam Humidifiers (Bul. 177)
<input type="checkbox"/> 3935	10' Plastic Tubing	<input type="checkbox"/> 3977	Booster-Conveyor Folder	<input type="checkbox"/> 4022	Electronic pH Meter (Bul. 110)	<input type="checkbox"/> 4066	Tylox Rubber Pipe Joints
<input type="checkbox"/> 3936	"Daintex" Detergent	<input type="checkbox"/> 3978	Barrel Trucks	<input type="checkbox"/> 4023	Electronic Potentiometers	<input type="checkbox"/> 4067	Soligen Driers Booklet
<input type="checkbox"/> 3937	No. 25 Coil Cement	<input type="checkbox"/> 3979	Hand Lift Trucks	<input type="checkbox"/> 4024	Instruments Catalog W1800	<input type="checkbox"/> 4068	Seamless & Welded Tubes
<input type="checkbox"/> 3938	Hard Facing Metal (F-633)	<input type="checkbox"/> 3980	Screw-Flo Conveyors	<input type="checkbox"/> 4025	Pressure Regulator Bul. 48	<input type="checkbox"/> 4069	Pyrex Glass Pipe (1A-3)
<input type="checkbox"/> 3939	Alumina Balls	<input type="checkbox"/> 3981	Jack-Tractor Tow Truck	<input type="checkbox"/> 4026	Abraser	<input type="checkbox"/> 4070a	Positive Blowers
<input type="checkbox"/> 3940	Chemicals	<input type="checkbox"/> 3982	Hydraulic Tail Gate Loader	<input type="checkbox"/> 4027	Tank Gauges	<input type="checkbox"/> 4070b	Gas Meters
<input type="checkbox"/> 3941	Fatty Acid Esters	<input type="checkbox"/> 3983	Brushing Catalog 200	<input type="checkbox"/> 4028	Flow Meters (46-766)	<input type="checkbox"/> 4071	"pH Tables for Electropolishers"
<input type="checkbox"/> 3942	Amcolite Safety Tile	<input type="checkbox"/> 3984	Screw Conveyors	<input type="checkbox"/> 4029	Pyrometers 194SA	<input type="checkbox"/> 4072	Gear Catalog 1000
<input type="checkbox"/> 3943	Welding Electrodes	<input type="checkbox"/> 3985	Electrifugal Pumps B6059D	<input type="checkbox"/> 4030	Laboratory Furniture	<input type="checkbox"/> 4073	"Common Sense" disc Filter
<input type="checkbox"/> 3944	Gel-A-Sol Resin 3924V	<input type="checkbox"/> 3986	Lit. Truck Roll-grip & Upender	<input type="checkbox"/> 4031	Pneumatic Transmitter	<input type="checkbox"/> 4074	Flexible Couplings
<input type="checkbox"/> 3945	Rust Remover	<input type="checkbox"/> 3987	Vibrators & Maintenance Catalog	<input type="checkbox"/> 4032	Moisture Tester	<input type="checkbox"/> 4075	Gradual Reduction Grinders
<input type="checkbox"/> 3946a	Heat Transfer Medium	<input type="checkbox"/> 3988	Conveyors Catalog	<input type="checkbox"/> 4033	Electric Drying Oven		
		<input type="checkbox"/> 3989	Monorail Cranes	<input type="checkbox"/> 4034	Stainless-Steel Containers		
				<input type="checkbox"/> 4035	Gyro-centric Screens (Cat. 477)		

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G-1) <input type="checkbox"/> 4078 "Organic Analytical Reagents (Vol. 3) <input type="checkbox"/> 4079 Palletter Truck Bulletin <input type="checkbox"/> 4080 Fastenings <input type="checkbox"/> 4081 Pipe Threaders <input type="checkbox"/> 4082 Fractional HP Transmission (47-40) <input type="checkbox"/> 4083 Sump Pumps (4605) <input type="checkbox"/> 4084 Laboratory Pulverizer <input type="checkbox"/> 4085 Adjusto-Speed Drive (Bul. 611-C) <input type="checkbox"/> 4086 Flow-Master Mixers <input type="checkbox"/> 4087 Stainless Jacketed Kettles <input type="checkbox"/> 4088 Corrosion-Proof Tank Lining Data <input type="checkbox"/> 4089 Saran Tubing <input type="checkbox"/> 4090 Vacuum Pumps <input type="checkbox"/> 4091 Laboratory Cabinets <input type="checkbox"/> 4092 Mitco Treads <input type="checkbox"/> 4093 High Vacuum Still <input type="checkbox"/> 4094 Inconel Flexible Tubing <input type="checkbox"/> 4095 Propellio Meters 350A <input type="checkbox"/> 4096 Protective Coating <input type="checkbox"/> 4097 Wire Conveyor Belts <input type="checkbox"/> 4098 Selector & Shut-Off Valves <input type="checkbox"/> 4099 Line Filters <input type="checkbox"/> 4100 Blenders & Mixers <input type="checkbox"/> 4101 Aftercoolers & Separators <input type="checkbox"/> 4102 Automatic Metering <input type="checkbox"/> 4103 "Packaged" Generator (Pub. 186) <input type="checkbox"/> 4104 Stainless Steel Stirrer <input type="checkbox"/> 4105 Stop Valves <input type="checkbox"/> 4106 Tank Gauges <input type="checkbox"/> 4107 Mercury Switches <input type="checkbox"/> 4108 Plastics Injector (Bul. 4701) <input type="checkbox"/> 4109 Pipe Strainers <input type="checkbox"/> 4110 Vent Units <input type="checkbox"/> 4111 Dust Collectors <input type="checkbox"/> 4112 Diaphragm Pumps (121)	<input type="checkbox"/> 4113 Continuous Dryers <input type="checkbox"/> 4114 Power Driver (Bul. TA-14) <input type="checkbox"/> 4115 Taper Lock Coupling <input type="checkbox"/> 4116 Filter Cloth <input type="checkbox"/> 4117 Kjeldahl Distillation 515D <input type="checkbox"/> 4118 Synchro-Lectric Viscometer <input type="checkbox"/> 4119 Oil Reclaimer (R-160) <input type="checkbox"/> 4120 Pressure Filter <input type="checkbox"/> 4121 Safety Can Hose Attachment <input type="checkbox"/> 4122 Slurry Pumps <input type="checkbox"/> 4123 Diaphragm Valves <input type="checkbox"/> 4124 Skids <input type="checkbox"/> 4125 Magnetic Separators (102A) <input type="checkbox"/> 4126 Wood Stave Tanks <input type="checkbox"/> 4127 Magnetic Separators & Pulleys <input type="checkbox"/> 4128 Laboratory Lectrodryer <input type="checkbox"/> 4129 Tank Heaters <input type="checkbox"/> 4130 Horizontal Plate Filters <input type="checkbox"/> 4131 Centrifugal Pump (Scherzer) <input type="checkbox"/> 4132 Relocoder <input type="checkbox"/> 4133 Proportioning Valves <input type="checkbox"/> 4134 Condensate Return (3250) <input type="checkbox"/> 4135 Pipe Fitting Machine <input type="checkbox"/> 4136 Stainless Steel Angle Valve <input type="checkbox"/> 4137 Instruments (Specify literature desired) <input type="checkbox"/> 4138 Metal Flexible Tubing <input type="checkbox"/> 4139 Chromalox Cylinder Heater <input type="checkbox"/> 4140 Fibrous Silica <input type="checkbox"/> 4141 Rubber Bumper Mats <input type="checkbox"/> 4142 Expansion Joint Pipe Fittings <input type="checkbox"/> 4143 Jet Pipe Regulator <input type="checkbox"/> 4144 Stainless Steel Valves <input type="checkbox"/> 4145 Stainless Steel Piping <input type="checkbox"/> 4146 Rotary Pressure Joints <input type="checkbox"/> 4147 Airetool CC-450 <input type="checkbox"/> 4148 Pipe Intersection Compass <input type="checkbox"/> 4149 Reaction "Trip-Supports" <input type="checkbox"/> 4150 Backstand Sander Assembly <input type="checkbox"/> 4151 Rotary Fine Crushers <input type="checkbox"/> 4152 Corrosive Liquid Pumps (Bul. 4711)	<input type="checkbox"/> 4153 All-Rubber Drums <input type="checkbox"/> 4154 Indicating Recorders <input type="checkbox"/> 4155 Fog Nozzles <input type="checkbox"/> 4156 Pumps Catalog B148 <input type="checkbox"/> 4157 Gas Combustion Assemblies <input type="checkbox"/> 4158 Intensive Mixer <input type="checkbox"/> 4159 Pulverizers <input type="checkbox"/> 4160 "Grid" Heat Equipment <input type="checkbox"/> 4161 Vapoliere <input type="checkbox"/> 4162 Filter Bases <input type="checkbox"/> 4163 Steam Traps <input type="checkbox"/> 4164 Compressor Control <input type="checkbox"/> 4165 Locking Electrical Plugs <input type="checkbox"/> 4166 Two-In-One Tape (CS 9270) <input type="checkbox"/> 4167 Jet Pumps <input type="checkbox"/> 4168 Dry Chemical Fire Extinguisher <input type="checkbox"/> 4169 Elbow Oil Gauge (Style OGG) <input type="checkbox"/> 4170 Vibratory Packers <input type="checkbox"/> 4170a Hydraulic Jolters <input type="checkbox"/> 4171 "Cub-Jr." Steam Trap <input type="checkbox"/> 4172 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type="checkbox"/> 4191 Copyplex Printer <input type="checkbox"/> 4192 Capping Machines <input type="checkbox"/> 4193 Stainless Filter Sheets <input type="checkbox"/> 4194 Low Temperature Units <input type="checkbox"/> 4195 Masonry Saws <input type="checkbox"/> 4196 Neoprene Gloves <input type="checkbox"/> 4197 Wire Conveyor Belts (Bul. 89) <input type="checkbox"/> 4198 Plastic Cork Coatings <input type="checkbox"/> 4199 Feeders Bulletin 61-64 <input type="checkbox"/> 4200 "24x24" Compression Molding Press <input type="checkbox"/> 4201 Valve Catalog No. 17 <input type="checkbox"/> 4201b Leveltronic Catalog No. 27 <input type="checkbox"/> 4202 Worm Gear Speed Reducers <input type="checkbox"/> 4203 Twin-Base Heater <input type="checkbox"/> 4204 Adjustable-Blade Fans (1000) <input type="checkbox"/> 4205 Pressure Regulators <input type="checkbox"/> 4206 Vacuum Pump Bulletin V45 <input type="checkbox"/> 4207 Rotary Cutters <input type="checkbox"/> 4208 Self-Adhesive Label Dispenser <input type="checkbox"/> 4209 Moisture Tellers <input type="checkbox"/> 4210 Automatic Steam Cleaner <input type="checkbox"/> 4211 Oil Purification (Specify Data Desired) <input type="checkbox"/> 4212 Wire Cloth Bulletins 5 & 6 <input type="checkbox"/> 4213 Drum Pump <input type="checkbox"/> 4214 Variable Pitch Sheave <input type="checkbox"/> 4215 Manway Necks <input type="checkbox"/> 4216 Jacketed Cast Iron Valves <input type="checkbox"/> 4217a Mixers Catalog 110 <input type="checkbox"/> 4217b Mill Catalog 85 <input type="checkbox"/> 4218 Carboy Drainer <input type="checkbox"/> 4219 Laboratory Ovens <input type="checkbox"/> 4220 Instant Drying System <input type="checkbox"/> 4221 Floor Patch <input type="checkbox"/> 4222 Resin Plants & Equipment <input type="checkbox"/> 4th cover Rotex Hopper Pump

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## "That's Interesting"

### U. S. Glucose Exports 76,000,000 Lbs.

Export of glucose from the U. S. last year totaled 76,000,000 pounds. Fifty years ago, European users of liquid glucose depended on a German product made from potatoes. T. M. Duche & Sons, Inc., introduced the American product to Europe through its London office fifty years ago. (L & L Industry Facts, 489 5th Ave., New York).

\*

### Machine Delivers Predetermined Number of Ice Cubes from Frozen Column

Patent 2,422,772 has been issued for an ice cube machine. It has a means for freezing a column of fluid; means for moving the frozen column in one direction; a cut-off member for cutting off sections of said column; a manually operated switch means for making the column move and a means for setting the switch for a predetermined number of cubes. (Nat'l. Patent Council, Gary, Ind.)

\*

### Electric Mixer for Beverage Glasses

An electric mixer with beater small enough to fit into beverage glasses is made by Edward Owen & Co., 983 Main St., Hartford, Conn. (As reported by Electrical Mfrs. Information Center, New York 17, N. Y.)

\*

### All-Aluminum Motor Has High HP per Lb.

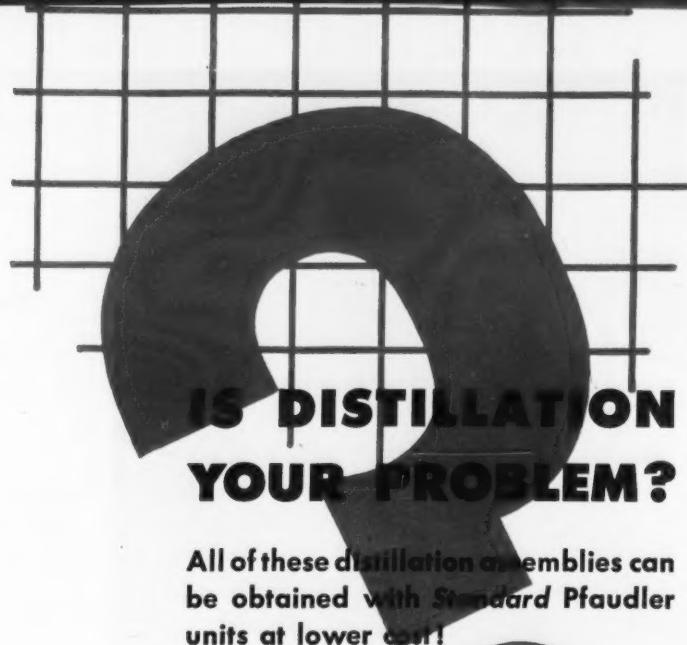
A new motor made almost entirely of aluminum and meeting all standard NE-MA requirements is now being made by Hertel Electric Co., Cleveland, Ohio. It features end yokes, frame and rotor made of aluminum castings. (Alcoa Aluminum News Letter).

\*

### Use Bouncing Putty in Device to Adjust Furniture Legs

General Electric's bouncing putty is now being utilized in a device that automatically adjusts table legs lengths to uneven floors. The product, known as Levelmatic, incorporates the putty in a simple cylinder and piston arrangement that accommodates variations up to 3/16ths of an inch. They are built to withstand rather severe loads and form metal to metal contact when the load is severe. (Blake Industries, Detroit, Mich.)

For more information on product at right, specify CP 3907  
see information request blank between pages 2-3.

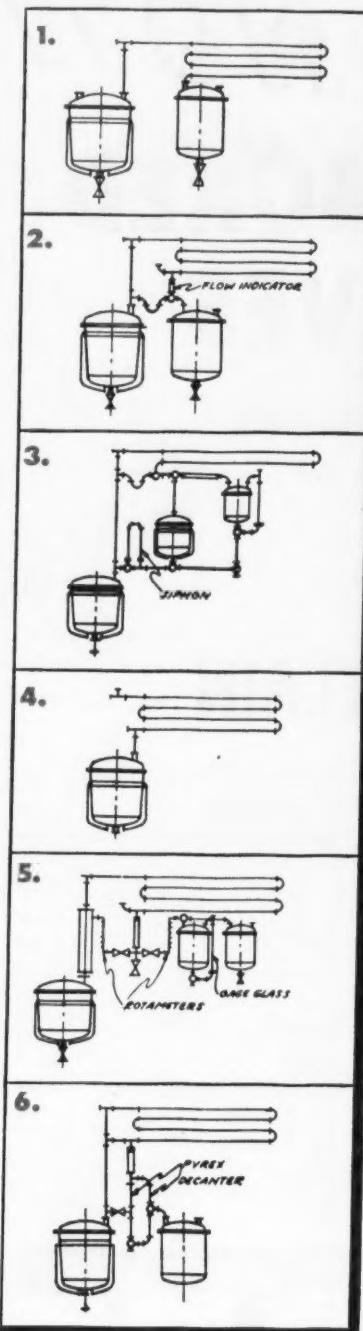


All of these distillation assemblies can be obtained with Standard Pfaudler units at lower cost!

If your process requires distillation equipment there is a good chance that you could reduce its cost by specifying standard Pfaudler glass-lined steel (or stainless steel) equipment, depending on the operating conditions involved. Both types are available in a wide range of sizes. Almost any type of agitation can be obtained with standard agitators and baffles. Performance factors are known. Production is standardized. Prices are lower than for custom built equipment.

Standard glass-lined steel reactors, stills, condensers, valves and piping, enable you to start and finish a distillation in glass. Your product is protected against metallic contamination, your equipment against corrosion. With the "E" Series (for low pressure reactions) and "R" Series (for high pressure work), there are literally hundreds of combinations available to meet your needs closely.

Standard stainless steel distillation equipment includes stills, heat exchangers, valves, mixers. Here again, the various combinations available permit a selection that answers most needs efficiently at moderate cost.



1. SIMPLE ordinary distillation where boiling points are well separated.

2. REFLUX—Maintaining temperature, removing heat or reaction or solvent recovery from exit gas stream.

3. COMBINATION—Combines functions of 1 & 2. (General purpose)

4. FRACTIONATION—for separating materials boiling close together or where product purity is vital.

5. EXTRACTION (Soxhlett)—Removing soluble components from solid materials.

6. DECANTING—Used in steam distillation of high boiling, heat sensitive, water insoluble materials, for continuous separation of the two phases.

THE PFAUDLER CO.  
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We are interested in distillation equipment for handling \_\_\_\_\_

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**CHEMICAL  
PROCESSING  
PREVIEW**

The Magazine of  
Processing, Its Control and Development

VOL. 11

FEBRUARY, 1948

NO. 2

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## HIGHLIGHTS

*These articles have been selected by the Editors as having unusual interest*

\* Porcelain Lined Processing Equipment . . . Corrosion resistance of this equipment eliminates possibility of contamination and eases cleaning

\* Variable Speed Control . . . Use of this drive on a drum dryer permits adjustment of speed of drum according to material being handled

\* Uformite 470 . . . Wet strength of glassine paper is increased 300 per cent when this resin is used

\* Dihydropyran . . . Here's a new intermediate that is one of the most versatile ever made available to the chemist

* Automatic and Continuous Titrator . . . Operation of this instrument is completely automatic . . . eliminates all manual operation except solution preparation and loading the feed unit	38
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#### Cover Picture Story

Shown on the cover is one step in the production of wet strength glassine paper. An article appearing on page 12 tells how Uformite 470 was employed to increase wet strength 300%. Substantial increase in dry strength was also secured.

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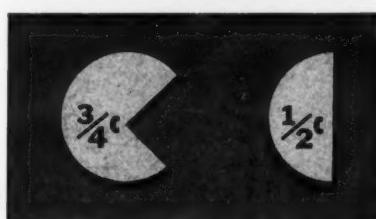
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# Porcelain Lining of Synthetic Rubber Processing Equipment Resists Corrosion

New Solutions  
OF PLANT PROBLEMS

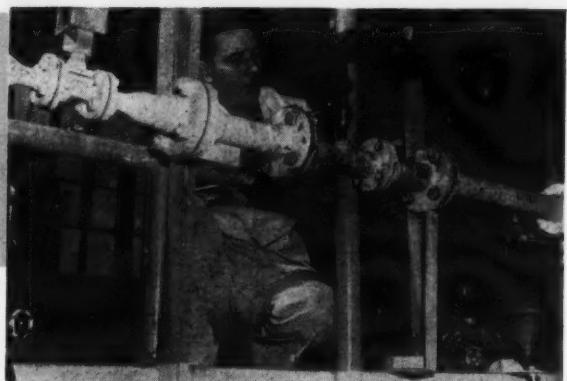


Synthetic latex is made in this polymerizer, porcelain enamel lined for corrosion resistance

**PROBLEM** — Goodyear Tire & Rubber Co., Akron, Ohio, in meeting huge war production schedules for synthetic rubber, had to cut down stoppages caused by corroded or clogged vessels. The vessels in which emulsions are broken and the latex crumbs separated have to withstand the corrosive action of hydrochloric acid or sulfuric acid. In addition to synthetic rubber operations, Goodyear also sought vessels that would provide better service in processing Pliofilm.

**SOLUTION** — Porcelain enameled reactors, piping, valves

**Eliminates stoppages due to corroded vessels, Resists acid coagulating liquors and is easily cleaned**



Checking venturi valves on porcelain enamel latex line and fittings were adopted as standard for polymerization work in the manufacture of synthetic rubber. Goodyear research laboratories began working in the early 1920's in search of a synthetic rubber which would equal or improve upon natural rubber. One of the important steps discovered was the emulsification process.

Porcelain enamel coatings have been used extensively to

protect equipment used in the reaction of dry chlorine gas with aromatic hydrocarbons at temperatures up to 330 degrees F. Hydrogen chloride is evolved from this process and in such reactions porcelain enamel lined vessels are particularly desirable. They do not present the catalytic and other actions encountered when using some corrosive resistant alloys, and avoid excessive corrosion.

Goodyear chemical engineers have found many specialty uses for porcelain enameled equipment and auxiliaries in the chemical and manufacturing processes. One feature of equipment so coated is its ready adaptability to many varied corrosive processes without excessive corrosion.

**RESULTS** — Although the ease of cleaning and freedom from product contamination are most important advantages of porcelain enamel coatings, corrosion resistance has particular bearing on the success of the rubber making process and product quality. In all instances the lining in the Goodyear installations cited has given satisfactory service for latex preparation, at pH from 5 to 10, at temperatures up to 140 degrees F.

Enamelled linings have proved satisfactory for acid coagulating liquors containing up to two percent sulfuric acid or hydrochloric acid with various concentrations of sodium chloride, various dilute alum solutions, and acetic acid up to 175 degrees F.

PORCELAIN ENAMEL INSTITUTE, 1010 Vermont Ave., N.W., Washington 5, D.C.

When inquiring specify CP 3910—see handy form pages 2-3

## Speed Control Permits Accurate Processing of Many Products in One Drum Dryer

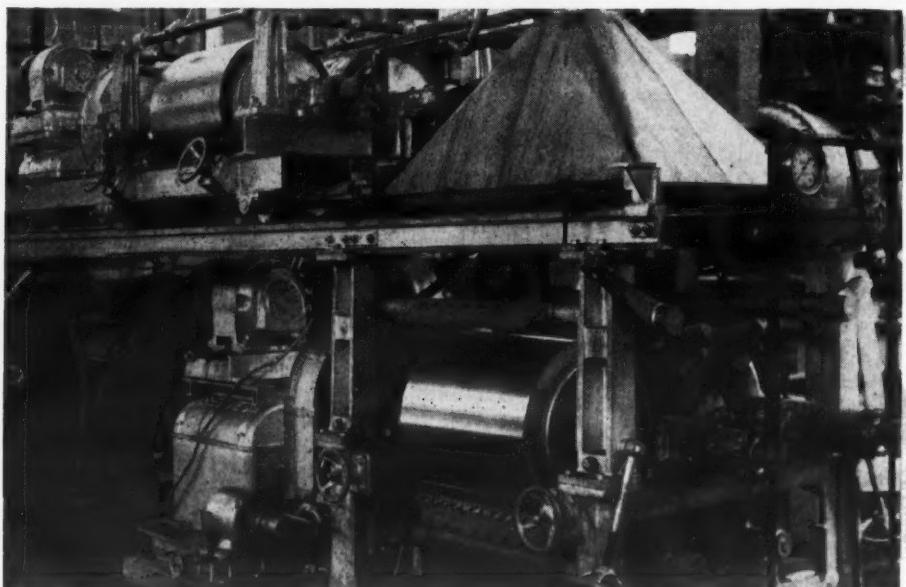


**Results of tests on numerous materials definitely indicate performance of large units in actual production application**



**PROBLEM** — Manufacturer producing a wide variety of products wished to dry them in the same drum dryer.

Accurate control of the speed of the drum would make this possible as the physical characteristics and drying qualities of these products are affected and controlled very largely by the rotative speed of the drums. Slight variations in density and moisture content of many products must be compensated for to produce a uniform product. The need for suitable speed control is indicated.



Variable-speed transmission and motor-pulley provide 30:1 variable speed range and provide speeds of  $\frac{1}{2}$  RPM to 15 RPM on the drum dryer

**SOLUTION** — The requirements of this user of drum dryers and others are accurately determined by the use of variable speed controls in connection with the laboratory dryers shown in the accompanying illustration.

The equipment shown is a laboratory double drum dryer manufactured by the Buflovak Equipment Division of Blaw-Knox Company of Buffalo, N. Y. The dryer is equipped with Reeves variable speed transmission and vari-speed motor pulley. With this combination, Buflovak is able to take a great variety of products and determine in their laboratory, both qualitatively and quantitatively, the possibilities of drying materials on drum dryers. Thus, they can determine with accuracy the output of larger sizes when handling the same materials which have previously been tested on this equipment.

The dryer, as shown in the photograph, can be used either as a double drum dryer or a two-stage dryer. Used as a two-stage dryer, it dries products having a critical drying period in their drying cycle. High capacities are obtained because the different phases of the drying cycle are completed in separate stages, each operating within its most efficient range.

The machine in the foreground of the photograph is a 24 in. x 24 in. atmospheric double drum dryer which is driven through a Number 3-R enclosed horizontal Reeves transmission. On the motor base is mounted a Number 75 Reeves motor pulley driving to a 26 inch diameter drive pulley on the constant speed shaft of the transmission. A block belt is used in this instance in place of the usual synthetic rubber belt because of the extra length that is needed. The variable speed shaft of the transmission drives through a herringbone 15:1, gear reducer to the pinion driving the large gears of the rolls.

By using this combination of vari-speed motor pulley and variable-speed transmission, at 30:1 variable speed range is obtained and speeds of approximately  $\frac{1}{2}$  RPM to 15 RPM are achieved on the drum dryer.

In the illustration, the upper dryer is moved back from the operating position, so that the unit in the foreground may be operated as a double drum dryer. When operating as a two-stage dryer, the dryers are directly over each other.

The upper dryer concentrates the solution when it is thin, and thus requires less power than the lower dryer which carries the partially concentrated solution through the final stages of the drying cycle. It requires a 3 HP motor to drive the upper rolls and a 5 HP motor for the lower. A small Number 28 Reeves vari-speed motor pulley, shown in the fore-ground, drives the splash feed mechanism employed when the dryer is used as a two-stage drum dryer, in which case the material is fed to the bottom of the drum.

**RESULTS** — Variable speed transmission and variable speed pulley provide the precise control over a wide range that is necessary for processing a variety of products to the specific requirements of each particular material or combination of materials.

The manufacturer in question was not only able to enjoy the efficiency and economy of handling a variety of products with one dryer but to achieve the essential product quality control.

The Buflovak Company is able to put a great variety of products under test and also to determine with great accuracy the output of larger sizes of industrial drum dryers when handling these same materials.

This application is typical of those that can be made incorporating the Reeves variable-speed transmission and vari-speed motor pulley on either pilot or production units.

REEVES PULLEY CO., Dept. CP, Columbus, Indiana.

When inquiring specify CP 3911 — see handy form pages 2-3

Tar Base Extraction Tank, fabricated of Monel Metal; 10'-0" diameter, 25'-7" high.

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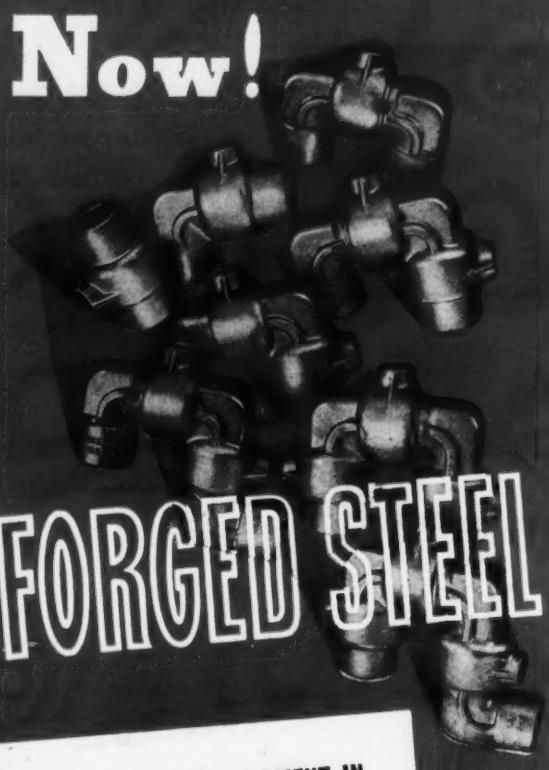
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When inquiring specify CP 3912 . . . see information request blank, pgs. 2-3



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When inquiring specify CP 3913—see handy form pages 2-3

Page 8

New Solutions OF PLANT PROBLEMS

## Area Type Meter Measures Flow of Black Liquor

Handles up to 3800 gallons per hour of concentrated black liquor containing 45 to 70% solids

**PROBLEM** — Pulp manufacturer employing soda or sulfate process had the problem of metering concentrated black liquor from the evaporators. In the past, this liquor has presented a difficult flow metering problem, since it contains from 45 to 70 per cent total solids (varying with the type of recovery used) with severe sludge-forming properties.

Use of differential pressure type flow meters was not advisable since solid matter would collect in front of the orifice and at the pressure taps in the flow line. Moreover, purging would require involved piping arrangements, as well as an undesirable amount of dilution of the concentrated liquor.

**SOLUTION** — A Brown Area Type Meter Body was installed. This combined with a recorder and totalizer connected to the area meter body by means of a three wire cable provided the complete metering system. System employs a standard inductance bridge transmitter and receiver arrangement. Here is the principle of operation.

With given properties of a fluid such as a heavy black

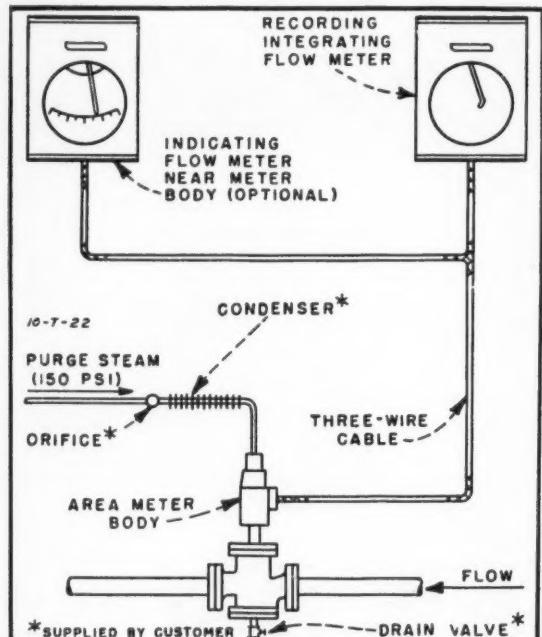
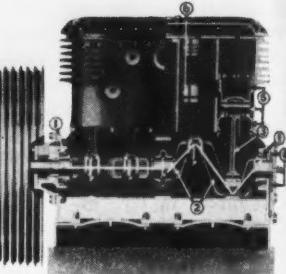


Diagram of the purge system employed in the metering of concentrated black liquor

liquor, flow in the pipe line is primarily proportional to the cross sectional area of the line and the square root of the pressure differential existing along a short length of pipe. A metering device installed in the line functions to maintain the pressure differential constant and at the same time varies the cross sectional area in the line so that changes in area bear a direct relationship to the flow through the device.

Area meter body is of the piston type, wherein the floating piston assumes a vertical position proportional to

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4. Positive, gear-type oil pump — full pressure lubrication throughout.
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## BAKER AIR CONDITIONING and REFRIGERATION

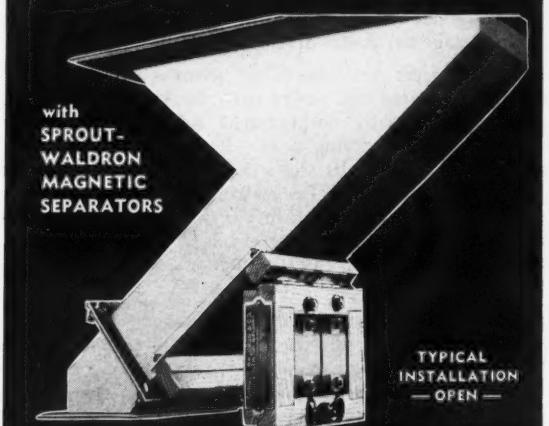
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**FIRE**, EXPLOSIONS caused by sparks resulting from tramp iron coming into contact with cutters, grinders, etc.

**LAW SUITS** arising from casualties to live stock which have been fed grain from which tramp iron has not been removed.

### SPROUT-WALDRON & COMPANY

Manufacturing Engineers

MUNCY

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When inquiring specify CP 3915—see handy form pages 2-3

CHEMICAL PROCESSING Preview

## New Solutions OF PLANT PROBLEMS

the rate of flow. Motion of the piston is translated into flow readings by means of an inductance bridge circuit. An armature extends from the piston into two induction coils which are a part of the bridge circuit. Any movement of the piston unbalances the circuit, which is then immediately returned to balance by a corresponding movement of the pen or indicator actuating armature in the instrument.

Adaptation of the conventional Brown area meter body for the measurement of black liquor has required only two minor changes in design, namely: (a) a disc welded on the armature rod so that it will cover the top of the piston and (b) a purge system installed in place of the needle bleed plug on the top of the meter body.

Disc is installed with some compression against the top of the piston so that solid matter in the liquor will be prevented from entering and settling inside the piston, but sufficiently loose so that the liquor can flow in or out of the piston with small changes in temperature which may occur. Calibration of the meter is thus maintained; whereas without this modification, the conventional meter would read low as a result of solids building up inside the piston and adding to its weight.

A small amount of hot water purge is required around the armature because this part of the meter body would otherwise be at a sufficiently lower temperature than the black liquor to cause the liquor to become very viscous or even solidify.

One method found successful for providing this purge comprises the use of condensed steam from a 150 psi main. A tap in the main is connected through  $\frac{1}{4}$  inch tubing to a very small orifice (about 0.006 inch), thence through an improvised condenser to the top connection on the meter body (see illustration). Condenser is merely a one-foot length of  $\frac{1}{4}$  inch finned copper tubing.

Maximum capacity of one meter body for heavy black liquor is approximately 1,900 gallons per hour. This can be increased to about 3,800 gallons per hour by use of a second area meter body piped in parallel with the first and both connected to the one recording and integrating meter.

**RESULTS** — Has proved to be a satisfactory method of metering concentrated black liquor . . . providing suitable accuracy and requiring only a reasonable amount of maintenance. Purge system employed uses only 20 gallons of water per day with black liquor of 33.5° Be' gravity at 170° F. and a maximum flow of 20 gpm. Dilution of the black liquor is therefore insignificant.

THE BROWN INSTRUMENT COMPANY, A Division of the Minneapolis-Honeywell Regulator Company, Dept. CP, Philadelphia 44, Pa.

When inquiring specify CP 3916 — see handy form pages 2-3

\*

### How To Get More Product Information

To make it convenient for readers to locate information in CHEMICAL PROCESSING Preview there is . . . on page 92 . . . a complete directory of all products that are featured in editorial articles or described in the advertisements in this issue; On page 94 you will find a list of the advertisers whose products are described in this issue; And to make it easy for you to secure additional information quickly there is a handy request slip inserted between pages 2 and 3.

# MORGANITE BEARINGS

..two-fisted for tough, continuous service,  
“kid-glove” in handling delicate production!



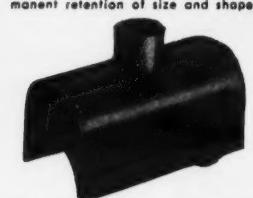
The MORGAN KNIGHT-like his four bearing—is an assurance of pre-eminent service and trustworthy performance. His research and data will be made available to you in these pages. Clip them for your file.



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Maintenance costs are sharply reduced, and friction and lubricating difficulties eliminated with the application of MORGANITE self-lubricating bearings.

**Morganite** INCORPORATED

LONG ISLAND CITY 1 • NEW YORK

**CARBON SPECIALTIES**

When inquiring specify CP 3917 . . . see information request blank, pgs. 2-3

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Wet collector on a spray dryer in a food processing plant.

Materials processed by the Swenson Gray-Jensen Spray Dryer are highly soluble because the product is in the form of spherical-shaped particles of high porosity. No further processing is required before packaging.

Swenson spray drying has numerous other advantages: (1) Ability to handle heat-sensitive materials; (2) Freedom from contamination in a completely closed system; (3) Continuous operation, with automatic removal of product; (4) Complete recovery of solids—no waste; and (5) Low operating cost, including fuel and manpower.

The services of our experimental plant and trained personnel are available to assist you in your drying problems.

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Division of WHITING CORPORATION Harvey, Ill.

Export Department 30 Church Street, New York 7, N. Y.

When inquiring specify CP 3918 . . . see information request blank, pgs. 2-3

**Lead and Lead-Lined Valves Handle Any Fluid in Chlorination Processes**

Lead and lead-lined valves for use with corrosive liquids are the subject of a 4-page leaflet. Literature includes photographs of each major valve type, describes corrosion-resistant qualities and specifies uses for each. Examples include sulphuric and sulphurous acids, any fluid in chlorination processes, kindred acids or compounds, others. "Corrosion Resistant Lead and Lead-Lined Valves."

AMERICAN SMELTING and REFINING COMPANY, Federated Metals Division, Dept. CP, Dept. SJ, 120 Broadway, New York 5, N. Y.

When inquiring specify CP 3919 — see handy form pages 2-3

\*

**Clogging Eliminated When Paper Stock is Moved With This Pump**

*Pump with open impeller design moves mixture of snow white sulphite and rag of high quality*

**PROBLEM** — The Beckett Paper Company, Hamilton, O., was experiencing extremely troublesome clogging of a vertical stock pump. This pump was fed a concentrated diet. It handled a mixture of snow white sulphite stock and rag stock. The mixture is effected in a Breaker beater, the doughnut shaped affair to be seen in Fig. 1. Beating occupies about two hours. In using the vertical stock pump it was necessary to open it up and clean it each time it was run.



Fig. 1. — White sulphite and rag ready for transfer

**SOLUTION** — The pump was replaced by a 5-inch pump, shown in Fig. 2. Because of the exceptional concentration of material to be handled, the pump was delivered with the understanding that the pump manufacturer's engineers would be permitted to run tests before sale was completed.



Fig. 2. — Pump which handles this very concentrated stock

In the first test, the stock was of a consistency of 6.1% and the pump moved it against a head of 9.5 feet at the rate of 1290 gpm. In a second test, the consistency of the stock had increased to 7.5%. The pump delivered 1170 gpm against a head of 16.5 feet. The efficiencies of the pump in these two tests were respectively 26.8% and 35.3%. The difference is explained in that the pump was handling more than its intended capacity in the first test because of the lower consistency and therefore it was not operating on as favorable a portion of its performance curve as in the second test.

**New Solutions of Plant Problems**

The new pump has an open impeller especially designed to handle clean, homogeneous paper stock devoid of long fiber.

**RESULTS** — Pump has operated regularly since installation without giving any clogging trouble. The pump handles stock above the consistency in most similar applications. It is no longer necessary, as with the former pump, to open it up and clean it after running.

FAIRBANKS, MORSE & CO., Dept. CP, 620 South Wabash Ave., Chicago, Ill.

When inquiring specify CP 3920 — see handy form pages 2-3

★

### Cut Chemical Container Cost from \$16.87 to \$6.00 per Ton

*Valve bags, filling machines replace fiber drums; speed operations, save storage space*

**PROBLEM** — One of the country's largest chemical companies made a check of possible production economies that, if achieved, would justify a lower cost to customers on an important material. Packaging was indicated as the one factor that offered opportunity for substantial savings. Product was being shipped to users in fiber drums which cost \$16.87 per ton of material packed.

The large amount of storage space required for drums also constituted a problem.

**SOLUTION** — Multiwall paper valve bags, 50 lb. capacity, and a valve-bag packaging system replaced the drums. Bags were custom-built to meet the exacting requirements of the product, protecting it against contamination and moisture penetration. The filling machines are easy to operate and rapidly fill the bags without waste or spilling.

**RESULTS** — Packaging costs per ton has been cut from \$16.87 to \$6.00 per ton. The space saving feature of the bags is reflected in the following comparisons. (1) Only one car of multiwall bags is required to handle the same amount of product as ten cars of drums. Estimated cost of moving a box car in and out of plant is \$15.00 per car. (2) Empty bags stored require 65% less space than drums, and filled bags nearly 20% less. Lower tare weight also effects freight cost savings. (3) Bags lend themselves to compact piling on pallets for truck handling.

Reduced raw material costs: as a result of using Multiwall bags, the producer and the customer save  $\frac{3}{4}$  and  $\frac{1}{2}$  cent per lb., respectively, manufacturer reports.

ST. REGIS SALES CO., Dept. CP, 230 Park Ave., New York 17, N. Y.

When inquiring specify CP 3921 — see handy form pages 2-3

★

### Lists Uses, Physical Data, Specifications for Distilled Synthetic Commercial Esters

A 13-page mimeographed research bulletin covers physical data and specifications of high purity, distilled synthetic esters. Now available commercially, these include butyl laurate, also the butyls and methyls myristate, oleate, palmitate and stearate. Listed uses include plasticizers and softening agents, also lubricants for textiles and leather. Research bulletin 101.

ARNOLD, HOFFMAN & COMPANY, INC., Dept. CP, 55 Canal St., Providence 1, R. I.

When inquiring specify CP 3922 — see handy form pages 2-3

No single formula for a protective coating can be versatile enough to provide maximum surface protection under all conditions without compromising on some desirable quality. For this reason, AMERCOAT offers a variety of coatings, each designed to meet important requirements in controlling corrosion and preventing product contamination. There are AMERCOAT Coatings for a full range of uses, from general purpose coatings for maintenance to specialized coatings for surfaces immersed in strong chemicals.

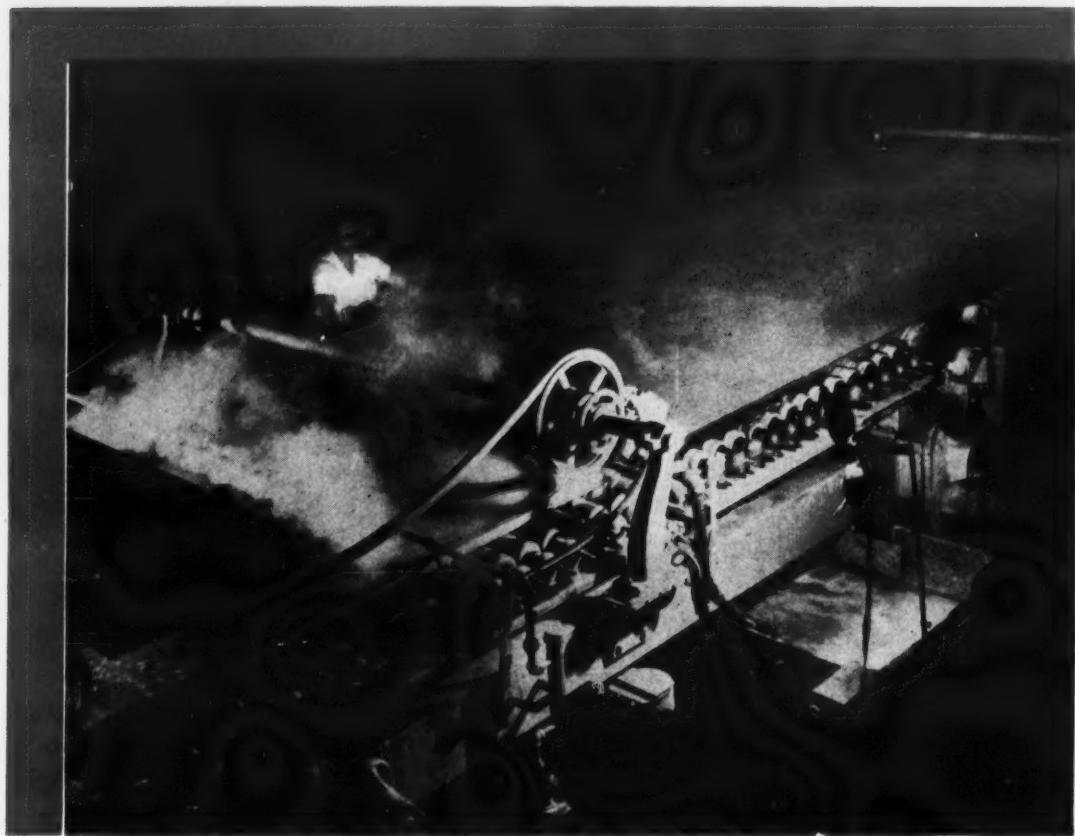
By standardizing on AMERCOAT, there is a choice of six AMERCOAT Industrial Plastic Coatings. Since application methods for these various formulas remain essentially the same, maintenance men become familiar with application and performance. This eliminates the necessity of gaining experience with coatings of several different manufacturers in order to have a product for every coating need.

Write for a free booklet on these AMERCOAT Coatings, or, if desired, detailed information on your specific coating problem, and address of supplier near you.

**AMERCOAT DIVISION, AMERICAN PIPE AND CONSTRUCTION CO.**

When inquiring specify CP 3923 . . . see information request blank, pgs. 2-3

# Materials



Uformite Strength characteristics are assured by the oscillating motion of the wire screen of the Fourdrinier which moves forward at a slower speed than that employed in the production of other type papers.



Adding Uformite 470 to the hydrated pulp at the head box. Rotameter indicates addition of this urea-formaldehyde resin

## Uformite 470 Increases Wet-Strength of Glassine Paper 300 percent

***As little as 1 to 3 percent of this urea-formaldehyde resin, based on the weight of the fibre, is required***

**P**ROBLEM — Low cost and transparency of Glassine paper are the qualities which have made this product widely accepted for many wrapping applications. There were uses, however, for which this product was un-suited because of its low wet strength. One of these was frozen food packaging, where water sensitivity is important.

The Riegel Paper Corporation, manufacturers of glassine paper, investigated the possibilities of producing wet-strength glassine paper so that this product would have the desirable properties of high wet-strength.

**SOLUTION** — Uformite 470 was employed. This is an alcohol-water solution of a urea formaldehyde resin which is capable of infinite dilution with water. Manufacturer recommends reduction of solids content of Uformite 470 to 5 to 10 per cent before mixing with the pulp, particularly if it is to be added at the head box or at similar points very near the wire. Temperature of the dilution

water should be 60° F. or higher. Dilution is best accomplished by adding the resin, as supplied, to sufficient water to reduce the solids content to 5 to 10 per cent.

Vigorous stirring should be employed to insure thorough dispersion of the resin. Addition should be made to the pulp after refining operations have been completed. Studies show that when addition is made during refining operations poorer wet strength is obtained in fully-aged sheets.

When convenient, aluminum sulfate should be used as the catalyst. Although peak efficiency occurs in the pH range 4.0 to 4.9, using aluminum sulfate as the catalyst, a large portion of the maximum attainable wet strength can be realized at pH values as high as 5.0 to 6.5, using either aluminum sulfate or hydrochloric acid as the catalyst. Order of addition of catalyst and Uformite 470 is not important, although the pH adjustment frequently is made first. Use of rosin size in the stock has little, if any, effect

on the wet strength efficiency of Uformite 470. Order of addition of rosin and resin is not significant.

Amount of Uformite 470 which should be added to the pulp depends upon the degree of wet strength desired and the actual papermaking conditions involved. In general, the quantity varies between 0.5 and 4.0 per cent resin solids on bone-dry pulp.

Temperature of the drier rolls in normal paper-making operations is sufficient to initiate the cure of Uformite 470, which will then proceed at room temperature (75° F.).

The higher the temperature of the drier rolls, the greater the wet strength immediately off the papermaking machine.

On sulfite and kraft pulps, degree of hydration of the stock influences the efficiency of Uformite 470. However, the effect is not great, since tests indicate that Uformite 470 is only slightly more efficient on highly hydrated pulps than on fibers merely dispersed in water.

Temperature of the pulp during sheet formation does not affect the efficiency of Uformite 470 in the range 70° to 130° F. When temperatures run as high as 130° F., the resin solution should be added as near sheet formation as

is consistent with good mixing efficiency.

On papermaking machines where tendencies to foam prevail, Uformite 470 may aggravate the situation. However, foaming can be controlled easily by addition of Nopco KF. One per cent dispersion of this material in water is quite effective, and extremely small quantities are needed. Generally 0.03 to 0.06 per cent as supplied, on the weight of the bone-dry pulp, will completely eliminate foam without any adverse effect upon the strength characteristics of the paper being made.

When a pH range of 5.0 to 6.5 is used, the rate of wet strength development of Uformite 470 is considerably slower than at pH 4.0 to 4.9, and a natural aging period of from 14 to 21 days usually is needed for full strength. A rough estimate of the wet strength which may be expected after natural aging can be obtained by heating a sample of freshly made paper at 212° to 250° F. for thirty minutes, then testing for wet strength.

Freshly made, wet strength broke containing Uformite 470 may be repulped in ordinary equipment without any special precautions. In cases where full wet strength has already developed, the temperature of the beater or hydropulper, where defibering takes place, should be raised to 140° to 160° F. and the pH of the stock reduced to 4.0 to 4.9 by means of aluminum sulfate.

#### Physical Properties.

Solids content	40%
Solvent	Water-Alcohol (2:1)
pH	7.5 to 8.5
Specific gravity	1.115 to 1.135
Pounds per gallon	10
Appearance	Water clear.

RESULTS — Following gives the results secured in the tensile strength of wet-strength glassine as compared to the older type.

Stock	Tensile Strength lbs. per inch		
	dry	wet	%
100% Sulfite — 3% Uformite 470	11.4	3.6	32
100% Sulfite — no resin	7.2	0.8	11

A substantial increase in dry tensile strength, and approximately a 300% increase in wet strength, is due to the use of Uformite 470. Riegel Paper Corporation reports increases on the order of 400%.

THE RESINOUS PRODUCTS & CHEMICAL COMPANY, Dept. CP, Philadelphia, Pa.

When inquiring specify CP 3924 — see handy form pages 2-3

#### Editorial Opportunity for Chemist or Chemical Engineer

Rapid growth of CHEMICAL PROCESSING Preview presents an opportunity for a qualified chemist or chemical engineer to become a member of our editorial staff.

Duties involve preparation of editorial articles and field calls which require some travelling. Should have a broad base of plant operating experience in the chemical processing field. Must like and be able to write clearly and tersely.

Write the Editor, outlining your education, experience, salary desired and other pertinent data.

PUTMAN PUBLISHING COMPANY  
737 North Michigan Avenue, Chicago 11, Illinois

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**COUMARONE RESINS**  
YOU WANT...  
*you're on the right track, with*



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. . . the most complete, from the  
lightest to the darkest color, from the  
highest melting point to the lowest!

A-26

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Chemicals for the Nation's Vital Industries

BENZOL • TOLUOL • CRUDE COAL-TAR SOLVENTS • HI-FLASH SOLVENTS  
COUMARONE-INDENE RESINS • RUBBER COMPOUNDING MATERIALS • TAR PAINTS  
WIRE ENAMEL THINNERS • PHENOTHIAZINE • ALKYLATED PHENOLS  
RECLAIMING, PLASTICIZING, NEUTRAL, CREOSOTE, AND SHINGLE STAIN OILS

When inquiring specify CP 3925 . . . see information request blank, pgs. 2-3

# CELANESE\*

# FORMALDEHYDE

Formaldehyde is one of the most important products in the expanding family of organic chemicals produced at CHEMCEL, the Celanese plant near Bishop, Texas.

High quality Celanese Formaldehyde U.S.P. is sold commercially as Formalin—a water white solution containing 40% Formaldehyde by volume, 37% by weight. It is manufactured in both methanol inhibited and uninhibited grades.

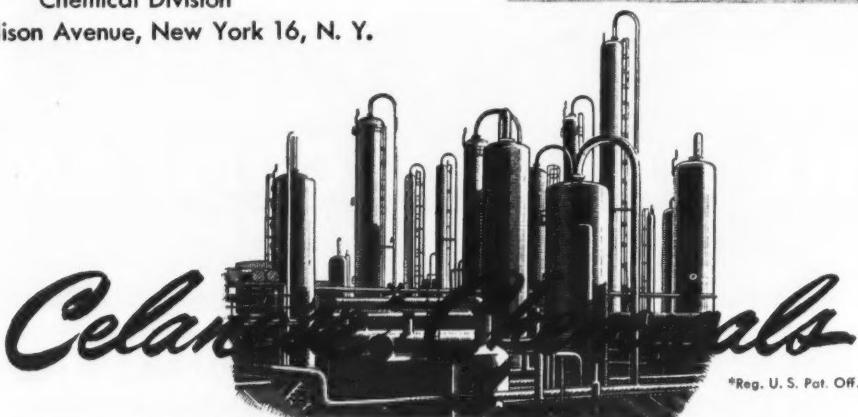
A clear, colorless liquid, controlled to meet the most exacting requirements, Celanese Formaldehyde is widely used in resins, adhesives, plastics and in the production of various organic chemicals.

A new brochure is available containing specifications and general information on many of the Celanese organic chemicals. Write for your copy—and call on Celanese whenever you need technical assistance regarding organics.

CELANESE CORPORATION OF AMERICA

Chemical Division

180 Madison Avenue, New York 16, N. Y.



ALCOHOLS • ALDEHYDES • GLYCOLS • KETONES • ORGANIC ACIDS • SOLVENTS • PLASTICIZERS • INTERMEDIATES

When inquiring specify CP 3926 . . . see information request blank, pgs. 2-3

## Materials

### Acetone Cyanohydrin Now Commercially Available

***$\alpha$ -hydroxyisobutyronitrile*** of interest as an intermediate for synthesis

**USES** — Of interest as an intermediate for synthesis. Containing two functional groups, a tertiary hydroxyl and a nitrile, many of its reactions are those to be expected of these functional groups.

**FEATURES** — Now available for the first time commercially.

**DESCRIPTION** — Acetone cyanohydrin, for a long time produced as an intermediate in the manufacture of methylmethacrylate. Reactions previously mentioned include hydrogenation of the nitrile to give an amino alcohol, acetylation of the hydroxyl, replacement of the hydroxyl with  $PCl_3$  to give  $\alpha$  chloroisobutyronitrile, and hydrolysis of the nitrile to produce  $\alpha$ -hydroxyisobutyric acid.

Good yields of  $\alpha$ -aminoisobutyronitrile and its *N*-substituted derivatives are obtained by reaction of acetone cyanohydrin with ammonia and with primary and secondary amines. The amino nitriles may be reduced to diamines or hydrolyzed to amino acids. The reaction of acetone cyanohydrin with ammonium carbonate gives a nearly quantitative yield of 5,5-dimethylhydantoin, which is readily hydrolyzed to  $\alpha$ -aminoisobutyric acid.

Simultaneous hydrolysis and dehydration of acetone cyanohydrin leads to methacrylamide sulfate in good yields.

Another type of reaction is illustrated by the reported preparation of  $\alpha$ ,  $\alpha$ -dimethylsuccinic acid by condensation of ethyl cyanoacetate and acetone cyanohydrin in the presence of sodium ethoxide, followed by hydrolysis of the intermediate dinitrile. Technical bulletin gives references.

ROHM & HAAS CO., Dept. CP, Philadelphia, Pa.

When inquiring specify CP 3927—see handy form pages 2-3

\*

### Dihydropyran—New Intermediate Available for Research

*Reactions expected to lead to important commercial applications*

**USES** — The reactions of this versatile chemical and those of its primary reaction products should lead to important commercial applications. Through reactions of the double bond, a great variety of compounds can be made, and fissure of the ring opens the door to alpha-omega disubstituted derivatives of pentane and heptane. The following illustrate only a few of the things which can be done with dihydropyran. Hydrogenation yields tetrahydropyran, a powerful solvent and chemical intermediate itself. Hydrolysis with dilute mineral acid solutions gives delta-hydroxy-valeraldehyde. Mono and Polyhydroxy compounds react with dihydropyran to form unique cyclic ethers. Hydrogen bromide yields 2-bromotetrahydropyran.

Grignard reaction can be used in the preparation of alkyl and aryl tetrahydropyrans from 2-bromotetrahydropyran. Chlorination gives 2, 3-dichlorotetrahydropyran, and distillation of the latter results in evolution of hydrogen chloride with the formation of 5-chlorodihydropyran.

Polymerization and copolymerization: Refluxed in the presence of benzoyl peroxide, dihydropyran slowly polymerizes to give a tacky, low melting polymer that is solu-

*Here's Why  
SHIPPERS PREFER*



**DESIGN.** There's a balanced relationship between diameter and over-all height...in Hackney Ammonia Cylinders. They can be easily, quickly and safely handled—save floor space as they can be stored safely in a vertical position.

**LIGHT WEIGHT AND STRENGTH.** The Hackney Deep Drawing Process assures uniform sidewall thickness and eliminates all excess material. After fabrication, special heat-treating further improves physical properties. The result is a strong but lightweight cylinder.

**APPEARANCE.** The Hackney Seamless Cylinder will reflect the high quality of your product. The cold drawing process results in a smooth, eye-appealing finish.

*Write for full details.*

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New York 17   235 Hanna Blvd., Cleveland 13, Ohio

When inquiring specify CP 3928—see handy form pages 2-3



#### **SAFEGUARD YOUR PRODUCTS AGAINST THESE DANGERS . . .**

Build an impenetrable wall against these dangers—specify Globe Stainless Steel Tubes. Highly resistant to wet corrosion, dry corrosion, scaling, breakdowns at high temperatures, Globe Stainless Steel Tubes, seamless or welded, provide enduring protection. Globe engineers will help you select tubes of the proper analysis for any tube problem you have. We'll gladly send you complete information on Globe Stainless Steel Tubes, seamless or welded (Gloweld), at your request. Globe Steel Tubes Co., Milwaukee 4, Wis., U.S.A.

**GLOBE STEEL TUBES**

When inquiring specify CP 3929—see handy form pages 2-3

FEBRUARY, 1948

## *Materials*

ble in methanol. Harder polymers can be obtained by polymerizing in water suspension. Dihydropyran is also of interest as an ingredient in copolymerizations with other monomers.

**FEATURES** — One of the most versatile chemical intermediates yet made available to the chemist.

**DESCRIPTION** — This important new intermediate is available in limited quantities for research and development.

**Physical properties:** Appearance — colorless mobile liquid. Odor — ether-like, penetrating. Molecular weight — 84.114. Boiling Point 86° C. at 760 mm. Specific Gravity 20° C/4° C . . . 0.923. Index of refraction, N-20/D . . . 1.4400. Flash Point, closed cup, 4° F. Solubility, water — 3.0 gms. in 100 cc at 20° C. Organic solvents . . . Soluble in most common organic solvents. Additional information given in Bulletin 18.

E. I. du PONT de NEMOURS & CO. (INC.), Electro-chemicals Dept. (Field Research Section), Dept. CP, Wilmington, Del.

When inquiring specify CP 3930—see handy form pages 2-3

## **Peracetic Acid 40%; A New Oxidizing Agent, Now Available**

*Of interest in oxidation, polymerization and  
bleaching processes*

**USES** — An oxidant in organic synthesis, permitting hydroxylation, epoxidation of double bonds, ring splitting action on substituted benzene and naphthalene rings. An active vinyl polymerization catalyst for bulk, suspension and emulsion polymerization. A bleaching agent for textiles, particularly for cellulose esters, for waxes, fats, etc., which is active in neutral or acid solutions. An enzyme inactivator, as well as an efficient germicide suitable for sterilization of process equipment.

**FEATURES** — Peracetic acid is a powerful oxidant for organic reactions characterized by unusual specificity, reactant solubility and smoothness of reaction not associated with normally used oxidant. Quantitative yields are obtainable in many cases. Freedom of metallic contamination of end product is achieved. Peracetic acid also serves as an important agent in syntheses for transitions from the aromatic to the aliphatic series.

Bleaching of alkali sensitive materials is possible because peracetic acid solutions are efficient bleaching agents below pH 7. Fats and waxes are effectively bleached without use of diluents and no emulsions form as in the case of aqueous bleaching agents.

Highly dilute solutions are powerful germicides, compatible with anionic wetting agents and applicable over a range of pH up to the neutral point.

**DESCRIPTION** — Peracetic acid 40% is a colorless liquid, containing over 8% active peracid oxygen. It is miscible with water and soluble in those media in which acetic acid is soluble. The solutions are of satisfactory storage stability.

Peracetic acid 40% is now available in commercial quantities. It is being shipped in 50 lb. carboys. Samples are also available on request.

BUFFALO-ELECTRO-CHEMICAL CO., INC., Dept. CP, Station B, Buffalo 7, N. Y.

When inquiring specify CP 3931—see handy form pages 2-3

*Onyx  
Suggests*

## **NSAE POWDER**

### **For Insecticides**

*As a spreading and dispersing agent.*



### **For Metal Cleaners**

*As a wetting, penetrating and dispersing agent.*



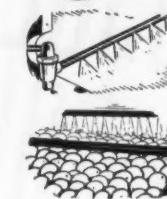
### **For Pickling Solutions**

*As a penetrant and wetting agent.*



### **For Conditioning Paper Mill Felts**

*On breaking in and reconditioning.*



### **For Fruit and Vegetable Washing Compounds**

*As a wetting and dispersing agent.*



NSAE Powder is an anionic wetting agent, stable in acid solutions, possessing rapid wetting characteristics in relatively concentrated solutions. It combines in one compound the action of an emulsifier, penetrant and dispersing agent, and provides high concentration of active ingredient at a moderately low price.

### **CHEMICAL AND PHYSICAL CHARACTERISTICS\***

**Chemical Constitution:** Sodium salt of an alkylnaphthalene sulfonic acid.

**Concentration:** 85% active ingredient (alcohol soluble).

**Compatibility:** Chemically stable to acids and alkalies. Compatible with hard water to 125 ppm.

**Stability:** Good to heat and in storage.

**Solubility:** Water — readily soluble up to 25% by weight. 25° C., 5 seconds.

\*Completely covered in Onyx Technical Bulletin IND.-2.

If you have ideas for possible use of NSAE Powder, write for a sample, outlining your proposed application.

### **ONYX OIL & CHEMICAL COMPANY JERSEY CITY 2, N. J.**

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Jersey City 2, N. J.

**onyx**

**CHEMICALS FOR INDUSTRY**

When inquiring specify CP 3932—see handy form pages 2-3

Page 15



P-470

# BECKOSOL SOLUTION

Eases brushing—  
Minimizes sagging—  
Adds high gloss  
and hard dry to architectural enamels

Exterior and interior air-dried architectural enamels and undercoats and trim and trellis paints acquire outstanding properties when formulated with P-470 Beckosol Solution. Resistance to grease and abrasion is good, water and weather resistance is excellent,

and color and gloss retention is exceptional. Like all pure alkyd Beckosols, P-470 also assures peak durability. A working sample and formulating suggestions may be obtained by writing direct to the Sales Department at Detroit.

## REICHHOLD CHEMICALS, INC.

General Offices and Main Plant, Detroit 20, Michigan

Other Plants: Brooklyn, New York • Elizabeth, New Jersey • South San Francisco, California • Seattle, Washington • Tuscaloosa, Alabama  
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**SYNTHETIC RESINS • CHEMICAL COLORS • PHENOLIC PLASTICS • INDUSTRIAL CHEMICALS**



When inquiring specify CP 3933 . . . see information request blank, pgs. 2-3

Page 16

## Materials

### Chlordane Now Soluble in Water

50/50 concentrates easily diluted for application by any spray equipment

**USES** — For use as a solubilizer with the insecticide Chlordane to provide a concentration which can readily be diluted with either soft or hard water to yield uniform, non-setting clear solutions of Chlordane.

**FEATURES** — These solutions made with this solubilizer — Trex 80 — are indefinitely stable because they are colloidal. Chlordane, a dark viscous liquid, has been insoluble in water and difficult to handle in low concentrations. Trex 80 is non-alkaline. Therefore it has no adverse effect upon Chlordane when used in solution with this insecticide.

**DESCRIPTION** — Trex 80 is a dark brown liquid of mild odor. pH (5% aqueous solution) 6.8. To make the Chlordane concentrate, it is recommended that a 50/50 mix by weight be prepared. The concentrate can be diluted with water, in the field, to any desired Chlordane content. Trex 80 is soluble in petroleum solvents, toluene, and is almost completely soluble in alcohol, acetone and water (distilled or 500 ppm). (If it is desired to emulsify oil base solutions of Chlordane with water, Trex 40 emulsifier is suggested.) Solutions made with Trex 80 can be used in any type of spraying equipment, with or without previous agitation.

GRIFFIN CHEMICAL CO., Dept. CP, 1000 16th St., San Francisco, Cal.

When inquiring specify CP 3934 — see handy form pages 2-3

★

### 10" Diameter Plastic Tubing

Held to close tolerances of both inside and outside diameter

**USES** — Oil refining and processing, textile field applications for cores and other requirements, vacuum cleaner housings and similar parts. The tubing is also adaptable for drainage and irrigation purposes.

**FEATURES** — Close tolerances, inside and out.

**DESCRIPTION** — This thermoplastic tubing is produced in diameters up to 10 inches and even larger where necessary. The production of large diameter plastic tubing opens up many possibilities for use in various fields.

CARTER PRODUCTS CORP., Dept. CP, 10225 Meech Ave., Cleveland, Ohio.

When inquiring specify CP 3935 — see handy form pages 2-3

★

### Liquid Wetting Agent Cuts Sudsing Time

Used with standard soaps and builders

**USES** — Liquid wetting agent and penetrant. Used with standard soaps and builders for washing all kinds of soiled clothes. Daintex is not used to replace either the soap or the builder. It is intended to work with them for a superior wash.

**FEATURES** — Tests at the American Institute of Laun-

CHEMICAL PROCESSING Preview

## Materials

dering have shown that this agent and penetrant aids removal of surface and impregnated soil from fabrics in less time than can be done with soap and alkali alone. It also shortens washing cycles by wetting out loads quickly and making it possible to eliminate one suds operation.

**DESCRIPTION** — Daintex is a liquid, containing the greatest practical concentration of wetting-out and penetrating terpene alcohols, which is used with standard soaps and builders. It is added directly to the wheel of the first break, or in the soap stock solution. Usual washroom practice is not affected. Daintex can be added on the break with builder alone. It can be added on the break with alkali and just enough soap to give very light suds. It can be added on the break with heavy amounts of soap and builder. If Daintex is put in the stock solution, then this solution may be used on the break and on all suds, or only in a special break-suds operation. Six to eight ounces is sufficient for a 300 lb. wash.

HERCULES POWDER CO. (Naval Stores Dept.) Dept. CP, Wilmington 99, Del.

When inquiring specify CP 3936 — see handy form pages 2-3

\*

### Antennae Coil Cement

Has high "Q" and excellent insulating qualities

**USES** — Formulated to meet the needs of the radio industry for a good adhesive to bind together and preserve radio coils and adhere interior radio antennae.

**FEATURES** — Will bond antennae to plastic surfaces such as polystyrene. Has a very high "Q" and excellent insulating qualities because of its high electrical resistance, thus curtailing the possibility of short circuits.

**DESCRIPTION** — No. 25 Coil Cement will permanently adhere radio antennae to the inside of cabinets. It can also be used to coat all types of radio coils to keep them moisture proof and also to render them mobile.

JAVA LATEX & CHEMICAL CORP., Dept. CP, 47 West 34th St., New York 1, N. Y.

When inquiring specify CP 3937 — see handy form pages 2-3

\*

### Hard Facing Metals for Acetylene, Electric Arc Use, Resist Acid Corrosion

Two grades of non-ferrous hard facing alloy, one for application by acetylene torch, the other for application by electric arc, are described, with illustrations, in a 4-page circular. These are described as being of cobalt-chromium-tungsten group, but contain tantalum-columbium carbide, a material developed for use in cemented carbide tools and said to impart "metallic lubrication," a low coefficient of friction useful in combatting abrasions.

When properly applied, hardness is described as about 53 Rockwell C, and retained at high temperatures. Literature discusses high red hardness, corrosion-resistance, application and finish, uses, etc. Features include non-magnetic, non-sparking, resistance to many mineral acids and most food acids. Form F-633.

FANSTEEL METALLURGICAL CORPORATION, Dept. CP, North Chicago, Ill.

When inquiring specify CP 3938 — see handy form pages 2-3

# now TABULAR ALUMINA BALLS!

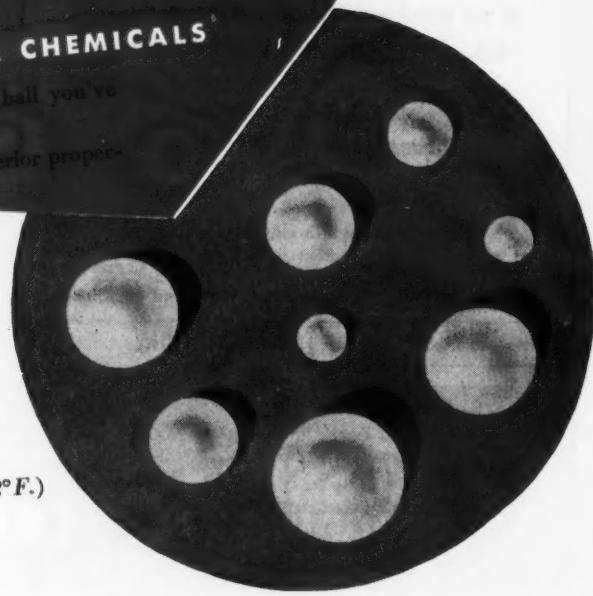
for: Pebble Heaters  
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and: Supports for Reactor Beds  
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A NEW DEVELOPMENT BY ALCOA CHEMICALS

These balls will handle more heat than any ceramic ball you've ever known!

Their outstanding performance results from these superior properties of Tabular Alumina:

- **HIGH HEAT CAPACITY**  
Specific heat at 1000° C. = 0.3 cal./g./C.
- **HIGH THERMAL CONDUCTIVITY**  
 $k$  (at 800° C.) = 0.009 to 0.010 cal./sec./sq. cm./cm./C.
- **HIGH DENSITY**  
Specific gravity = 3.75
- **HIGH RESISTANCE TO THERMAL SHOCK**  
Will stand sudden changes of as much as 1000° C. (1832° F.)
- **HIGH RESISTANCE TO MECHANICAL SHOCK**
- **HIGH RESISTANCE TO ABRASION**
- **RESISTANT TO ACID AND ALKALI**
- **99%+ ALUMINA**
- **AVAILABLE** In nominal diameters of  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ " and  $\frac{3}{4}$ "



Alcoa Tabular Balls offer you new money-saving possibilities in all heat exchange operations. And you'll find them excellent as supports and screens in catalytic beds and reactor chambers.

Let us send you more information on this important, new development.

Write to: ALUMINUM COMPANY OF AMERICA, CHEMICALS DIVISION, 1465 Gulf Building,

Pittsburgh 19, Pennsylvania.



## ALCOA CHEMICALS

ALUMINAS AND FLUORIDES

ACTIVATED ALUMINAS • CALCINED ALUMINAS • LOW SODA ALUMINAS • TABULAR ALUMINAS • HYDRATED ALUMINAS  
ALUMINUM FLUORIDE • SODIUM FLUORIDE • SODIUM ACID FLUORIDE • FLUOBORIC ACID • CRYOLITE

When inquiring specify CP 3939 . . . see information request blank, pgs. 2-3

FEBRUARY, 1948

## B. F. Goodrich Chemical Company

has for sale these GOOD-RITE chemicals

In Commercial Quantities

Phenyl p Naphthyl Amine • Distilled • Commercial

Mixed Mono-and Diheptyl Diphenyl Amines

Isopropoxy Diphenyl Amine

p Hydroxy Diphenyl Amine

N-Nitroso Diphenyl Amine

Diphenyl p Phenylene Diamine

Di B Naphthyl p Phenylene Diamine

Monobenzyl Ether of Hydroquinone

Di Isopropyl Dixanthogen

Mixed Ethyl and Dimethyl Mercaptothiazoles

Polymerized Trimethyl Dihydro Quinoline

In Pilot Plant Quantities

Dibenzyl Ether of Hydroquinone

For additional information please write

**B. F. Goodrich Chemical Company** A DIVISION OF THE B. F. GOODRICH COMPANY  
Department CG-2, Rose Building, Cleveland 15, Ohio

When inquiring specify CP 3940 — see handy form pages 2-3

## Materials

### Apply Light, Durable Tile Over Wood, Steel, Concrete Floors

3/16"-thick units resist fracture despite 2-lb. ball dropped from 8'; are sanitary, non-skid

USES — Safety tile for use where requirements include safe footing, high impact resistance to dropped boxes, cans or equipment, support for light trucking and resistance to water or oil absorption, high temperatures and most commercially-used acids and alkalies.

Useful where cleanliness is paramount, as in bottling and processing. For chemical plants, laboratories, showers and walkways.

FEATURES — Combines durability, weight economy, cleanliness and traction. Can be applied over existing wood, concrete or steel floors, eliminating expense and inconvenience of ripping up old floors and avoiding dust nuisance. Fire retardant.

Extremely resistant to shock impact. In tests confirmed by U. S. Testing Company (Report No. 78095), a 2-lb. ball was dropped on a standard 3/16"-thick Amcolum tile from height of 8' without fracture. By comparison, manufacturer reports that asphalt and ceramic tiles 1/2" thick will crack from the blow of a 2-lb. ball dropped from height of 1', and that ceramic tile 1 1/8" thick will crack under a 4' drop.

DESCRIPTION — A homogenous, compact structure composed of aluminum oxide abrasive and other inert fillers, evenly distributed and bonded together with a

heat resisting thermosetting phenolic resin. Average 2 1/2 lbs. per sq. ft. with a total installed weight, including the special adhesive, of 3 1/2 lbs. per sq. ft.

Water absorption, less than 1% after 24 hr. immersion. Oil absorption less than 1/4 of 1%. Withstands temperatures between 0 and 240°F. without softening, and will not support combustion. Colors, red or green. Sizes, 6 x 6 x 3/16" and 9 x 9 x 3/16". Applied with latex-type adhesive, mixing like ordinary cement and applied by trowel. Special adhesives are also available.

AMERICAN ABRASIVE METALS COMPANY, Dept. CP, Irvington, N. J.

When inquiring specify CP 3942 — see handy form pages 2-3



### Convert Resin to Form Resilient Rolls and Plastic Casting Molds

Sets at 140° C; tensile strength 500 psi,  
Shore A hardness 24, elongation 500-600%

USES — May be used to cast rolls of all sorts for pressure printing; flexible molds for casting thermoplastics and thermosetting resins such as ethyl-cellulose, phenolics, styrene-polyester resins. It may be used for low pressure lamination and extrusion work, and may be applied by spreading, coating and dipping. By whipping air into the resin and heating, a resilient foam rubber can be made which shows little tendency to distort.

FEATURES — Resistant to steam, water, alkalies, acids



## CHEMICAL SPECIALTIES

### FATTY ACID ESTERS

DIBUTYL TARTRATE

BUTYL STEARATE

BUTYL OLEATE

BUTYL "CELLOSOLVE"\*

STEARATE

METHYL "CELLOSOLVE" OLEATE

\*TRADEMARK OF C & CCC

STEARATES

PALMITATES

OLEATES

RICINOLEATES

LAURATES

for the

Textile, Cosmetic, Pharmaceutical, Petroleum, Plastic and Allied Industries

**KESSLER CHEMICAL CO., INC.**

ESTABLISHED 1921

STATE ROAD and COTTMAN AVE., PHILADELPHIA 35, PA.

When inquiring specify CP 3941 . . . see information request blank, pgs. 2-3

Now! The IMPROVED  
Allcraft "INCONEL" Pail

PROTECTS  
PRODUCT  
PURITY



This ALLCRAFT Inconel\* pail is smooth...seamless...free of dirt-catching crevices.

Pails are easier to clean, keep clean longer. And they guard sensitive products from contamination in other ways, too.

For Inconel is solid metal. It has nothing to chip off, nothing to peel or wear away. It resists corrosion. Never rusts. It's a natural for handling dilute sulfuric acid, dilute hydrochloric acid, many oxidizing and acid salts, and a long list of other acids, alkalies and organic chemicals.

Improved ALLCRAFT Inconel pails are made in four sizes. Capacities: 12, 14, 16 and 20 quarts. Available coast-to-coast. Write now for name and address of distributor nearest you.

THE INTERNATIONAL NICKEL COMPANY, INC.  
67 Wall Street, New York 5, N. Y. \*Reg. U. S. Pat. Off.



When inquiring specify CP 3943 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Materials

and oxidizing agents. Resistant to solvents like alcohols, fats and oils. However, solvents like esters, ketones, will extract the plasticizer and stiffen it. It is resistant to weather, oxidation and aging, and will stand temperatures up to 212 degrees F. without softening.

**DESCRIPTION** — Gel-A-Sols may be modified to obtain varying degrees of hardness and to obtain adhesion to metals and non-porous materials. Pigments and dyes may be incorporated to obtain certain effects. The product is one of a series of resins which on moderate heating converts into a rubber-like composition that is yellow, slightly opaque, non-porous.

INTERNATIONAL PRODUCTS CORPORATION, Dept. CP, P. O. Box 118, Trenton 1, N. J.

When inquiring specify CP 3944 — see handy form pages 2-3



### Remover Leaves Rust Inhibiting Coating which Retains Paint

*Lab tests show effectiveness of coating which is odorless*

**USES** — For rust prevention and removal. For use on machinery, tools, hoists, steel structures and sheeting, boilers, water pipes and large structures of iron and steel exposed to corrosive conditions.

**FEATURES** — Material is described as combining chemically with metal surfaces, after removal of rust, to form a rust inhibiting coating which resists further rusting and corrosion.

**DESCRIPTION** — Phospholene No. 7 is easily applied by brush or spray. In protecting some objects, dip method is most practical. Rust is removed through chemical action, no scraping or rubbing is required. Manganese Phospholene provides a coating that does not affect tolerances.

Another important use is in bonding paint or lacquer to metal. Prevents peeling off and contributes to a firm grip of the paint or finish. Stops flaking or peeling commonly experienced and due to improper cleaning or treatment of metal surfaces.

Report of investigation by Pittsburgh Testing Laboratories is as follows:

A gallon sample of the subject material was submitted by the client to investigate its rust removal ability from steel when used according to directions furnished.

1. At room temperature, immersion of uniformly rusted specimens for a period of approximately 80 minutes resulted in removal of all visible rust. At an elevated temperature of 160 degrees F. the same result was accomplished in a much shorter immersion time varying from 3 to 6 minutes depending on the degree of rust.

2. To investigate the amount of possible coating remaining, a clean sample was immersed for 30 minutes in the hot solution and the coating subsequently removed by 10% Sodium Hydroxide solution. A coating weight of 0.05 mg. per square inch was found present. That the coating was protective was illustrated by the lack of visible rust on the treated specimen after washing with water, while an untreated companion specimen exhibited rusting immediately.

WESTERN RESERVE LABORATORIES, Dept. CP, 1430 St. Clair Ave., Cleveland 13, Ohio.

When inquiring specify CP 3945 — see handy form pages 2-3

## CHEMICAL COMMENTS

### MORE AND MORE JOBS FOR DOWFLAKE

Dowflake (Dow's convenient flake-form calcium chloride) has long been well known and valued in Portland cement concrete construction and for making gravel or similar type roads firm and dustless. But many and diversified are its other applications. It dust-proofs and freeze-proofs coal. It serves as a refrigerant in the frozen food industry as well as in leading warehouses and ice plants, where it circulates freely at sub-zero temperatures and reduces operating and equipment costs. It acts as an anti-freeze in fire barrels. And now it is more and more in demand as a de-humidifier of damp basements, game rooms and storage areas. Dowflake is a real career chemical!

### 50 YEARS WITH BROMINE

The first products manufactured by Dow over 50 years ago were the bromides—and today over 100 bromine products, both organic and inorganic, are being produced for use by many and varied industries. The story of these interesting chemicals and their properties make up a new booklet entitled, "Bromine and Bromine Products." A copy may be obtained by writing the nearest Dow office.

### METHOCEL IS OUR "GOOD MIXER"

Methocel (Dow Methylcellulose) is soluble in water, and yields neutral solutions in a wide range of viscosities, varied to suit many diversified applications. Many industries, including paper, paint, leather, textiles and cosmetics, take advantage of Methocel's widely applicable properties which make it ideal as a dispersing, thickening, stabilizing, emulsifying, binding and coating agent.

*Additional information about any of these products is available on request.*

for Noodles  
or Nylon!

process men value

# DOWTHERM

for accurate temperature control

#### 4 MORE

#### Basic Dowtherm Dividends

##### ECONOMY

1 Dowtherm's accuracy, uniformity and long life minimize operating and maintenance costs.

##### SIMPLICITY

2 Systems can be entirely automatic. Pressure adjustment makes single vaporizer do several different jobs at once.

##### EFFICIENCY

3 High coefficient of heat transfer speeds heating, minimizes equipment size and quantity of Dowtherm needed.

##### SAFETY

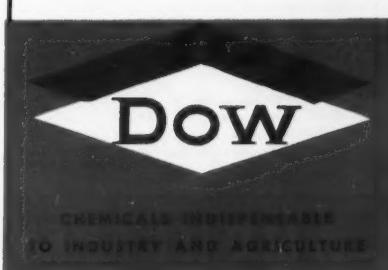
4 Permits separation of fire from flammable material. Low pressure at high temperature reduces operating hazards.

In hundreds of industries where processing operations require constant and accurate temperature—from noodles to nylon—Dowtherm has proved invaluable in providing and controlling the required heat. Here is the modern heat transfer medium—efficient over a wide temperature range at low pressure and holding temperatures constant by pressure regulation. Process men know that uncontrolled heat can mean spoiled batches, equipment replacement—and lowered profits. Not so with Dowtherm! This modern heat transfer medium prevents hot spots, saves time, prolongs the life of materials and equipment—and brings to processing operations a hitherto unknown safety.

If your operations require precise, low-pressure heating in the 300°-725° F. range, write to Dow for complete information about Dowtherm.

#### THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit  
Chicago • St. Louis • Houston • San Francisco • Los Angeles • Seattle  
Dow Chemical of Canada, Limited, Toronto Canada



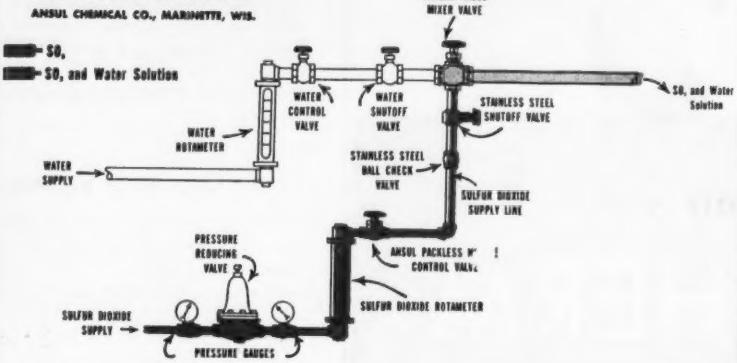
CHEMICALS INDISPENSABLE  
TO INDUSTRY AND AGRICULTURE

When inquiring specify CP 3946 . . . see information request blank, pgs. 2-3

A SIMPLE WAY TO  
MAINTAIN A  
DEVELOPED BY  
ANSUL TECHNICAL STAFF

CONTINUOUS SULFUR DIOXIDE  
and WATER MIXING SYSTEM

ANSUL CHEMICAL CO., MARINETTE, WIS.



● Pre-mixing of water and liquid SO<sub>2</sub>... accomplished through the use of meters and a single, Ansul-designed valve installed at the juncture of the water and SO<sub>2</sub> supply lines... permits constant control of the H<sub>2</sub>SO<sub>3</sub> at any desired concentration.

If you have need for an SO<sub>2</sub> mixing system for a specific application in your business, Ansul technicians will plan one for you.



### PHYSICAL PROPERTIES

Chemical formula.....	SO <sub>2</sub>
Molecular weight.....	64.06
Color (gas and liquid).....	Colorless
Odor.....	Characteristic, pungent
Melting point.....	-103.9° F. (-75.5° C.)
Boiling point.....	14.0° F. (-10.0° C.)
Density of liquid at 80° F. ....	(85.03 lbs. per cu. ft.)
Specific gravity at 80° F. ....	1.363
Density of gas at 0° C. and 760 mm. ....	2.9267 grams per liter (0.1827 lb. per cu. ft.)
Critical temperature .....	314.82° F. (157.12° C.)
Critical pressure.....	1141.5 lbs. per sq. in. abs.
Solubility.....	Soluble in water
Purity.....	99.9+% (by wt.) SO <sub>2</sub> (H <sub>2</sub> O less than 0.01%)
REG. U. S. PAT. OFF.	



Send for your copy of "Liquid Sulfur Dioxide"—a treatise on the properties, characteristics, and industrial uses of Liquid Sulfur Dioxide—written by the Ansul Technical Staff.

**ANSUL CHEMICAL COMPANY**  
INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WIS.  
60 E. 42nd St., New York — 535 Chestnut St., Philadelphia

When inquiring specify CP 3947 — see handy form pages 2-3

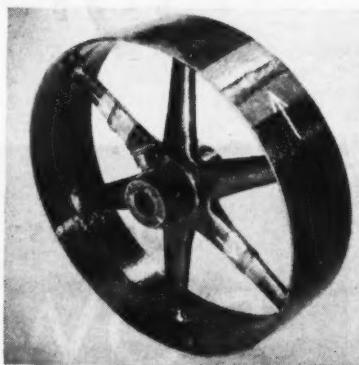
### Materials

#### Cast Iron Rod Avoids Manual Fluxing

Color-matching flux-coated unit welds stressed cast shapes

USES — Designed specifically for all types of gray or alloy cast iron and to eliminate difficulties that may be encountered in manual fluxing when welding stressed cast steel shapes.

FEATURES — Welds pictured were made with an oxy-acetylene flame,



Welds made with oxy-acetylene flame-preheat of 200 degrees

with a slight pre-heat of 200 degrees, using a Number 5 tip which was held at a distance of  $\frac{3}{8}$  inch from flame cone to surface metal.

The well-known principle of flux-coating, now available for cast-iron torch welds, is said to make it possible to achieve fast, smooth welds of similar character quite easily, with very little fusion of the base metal, and with correct fluxing automatically maintained at every point during the weld. All broken sections or cracks in this pulley were beveled to 75-90 degrees, and a forehand welding procedure was used to melt the flux and filler metal after heating the welding area to a dull red. No special technique is required.

DESCRIPTION — This rod develops a tensile strength of 48,000 psi in the weld deposits, bonding at 950 to 1400 degrees F., with a remelt temperature of 2200 degrees F. Its coefficient of expansion is the same as that of gray cast iron. Its hardness is approximately 190 Brinell, producing welds that are fully machinable. The rod is identified as Eutectic Rod 14 FC.

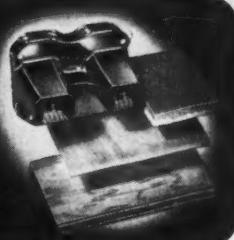
EUTECTIC WELDING ALLOYS CORP., Dept. CP, 40 Worth St., New York, N. Y.

When inquiring specify CP 3948 — see handy form pages 2-3

GET THE FACTS

### SILVACON

FOR NEW AND LOWER-COST  
END PRODUCTS  
DRY • FREE-FLOWING  
PLENTIFUL • UNIFORM



SILVACON is a family of versatile new raw products manufactured from tree bark by Weyerhaeuser Timber Co.

SILVACON fractions are: 383, cork particles; 508, hard, lignified fibers; 490, powdered amorphous material; 412, cork-fiber combination; 472, cork-fiber-powder combination.

A few examples of proved uses: SILVACON in plastics maintains quality at reduced costs; SILVACON extends phenolic resins to new limits, producing lower-cost adhesives; blends insecticide dusts accurately; increases wet strength of magnesite flooring; adds resiliency to asphalt floor emulsion compounds.

Experimentally SILVACON has rewarding application in many and varied fields—yours perhaps!

#### Write for Literature and FREE Samples

Ask for our folder detailing physical and chemical properties of SILVACON. It lists proved and experimental uses to help you in your own product development work. We'll send free samples on request. Our development engineers and field representatives will furnish technical assistance. Write, Weyerhaeuser Timber Company, SILVACON Department, Longview, Washington.

A PRODUCT OF *Weyerhaeuser* DEVELOPMENT  
**SILVACON**  
BUILDING AMERICA'S FORESTS FOR AMERICA'S FUTURE



When inquiring specify CP 3949 — see handy form pages 2-3



#### WANT A

#### TABLE GUMMER GLUE THAT REALLY WORKS?

Paisley research has developed three brand new Table Gummer Glues...

1. TABLE GUMMER BOTTLE LABEL GLUE
2. TABLE GUMMER TIN CONTAINER GLUE
3. TABLE GUMMER SHIPPING LABEL GLUE

Each of these fine new adhesives possesses distinctive characteristics. Each one is specially designed for the job it has to do. No one all-purpose Table Gummer Glue can work with the same speed and efficiency on tin, glass, paper and other packaging materials. Now, with the right kind of PAISLEY Table Gummer Glue, labeling operations of this type can be performed with greater speed and efficiency. Labels stay put... no shifting or falling off. Loose, torn edges, and spotty gumming are eliminated. Order a trial shipment TODAY, or send for free Adhesive Operation Data Sheet.

**Paisley**  
SCIENTIFIC ADHESIVE SERVICE

#### PAISLEY PRODUCTS INCORPORATED

Manufacturers of Glues, Pastes, Resin Adhesives, Cements and Related Chemical Products  
1770 CANALPORT AVE., CHICAGO 16, ILL. ★ 630 W. 51ST STREET, NEW YORK 19, N. Y.

When inquiring specify CP 3950 — see handy form pages 2-3

## Materials

### Synthetic Rubber & Resin Base Adhesive Has Prolonged Tack

Adheres paper, fabric, cardboard to metal or other impervious surfaces

**USES** — This flexible adhesive may be used for gluing foil, leather, cellophane, coated paper, fabrics, and almost all other covering materials where a strong and prolonged tack is desired. The adhesive will adhere to practically any surface, including asphalt, cork, wood, steel, aluminum, tin, glass, natural or artificial casings.

**FEATURES** — One of the principal advantages of this adhesive is its prolonged tack. Within 15 to 30 seconds depending upon the thickness of the film and type of material, it develops an extremely high degree of stickiness. The strong tack is retained for a long time.

**DESCRIPTION** — Known as Adhesive 1711-R, the product may be applied by automatic machine, spray gun, or by hand brushing. It comes ready-to-use, although most users dilute it up to 30 per cent with water. It is a rich cream color when liquid and dries to a light tan.

In using it, one of the two surfaces must be non-moisture proof. It will not glue metal to metal. The bond formed in adhering paper, fabrics, etc. to impervious surfaces is non-crystallizing. It is not affected by normal temperatures or humidity extremes. Gluing machines may be cleaned with hot water, or if the adhesive is dry, with ordinary solvents.

SWIFT & CO., Dept. CP, Chicago 9, Ill.

When inquiring specify CP 3951 — see handy form pages 2-3

\*

### Shielded-Arc Silicon Bronze Electrode, 3/32"-1/4" Sizes

Produces spray-type arc action

**USES** — Developed especially for requirements where preference is to use electrode of similar composition to the parent metal when fabricating and repairing silicon bronze parts.

**FEATURES** — This shielded-arc silicon bronze electrode operates on reverse (positive) polarity, direct current. The coating and core wire are designed to produce a spray type arc action, lower spatter loss, free-flowing slag, and weld metal producing crack-free, smooth, dense deposits. The slag is friable and easily removed.

Operators are enabled to use the metallic-arc method with superior results. It requires less operator skill, produces a sound deposit and develops less "heat" in the joint. Weld deposit cracking is minimized.

**DESCRIPTION** — Known as Sil-Trode, this electrode is recommended primarily for the metallic arc welding of silicon bronzes, although like most other bronze electrodes, it may be used to weld copper, dissimilar metals.

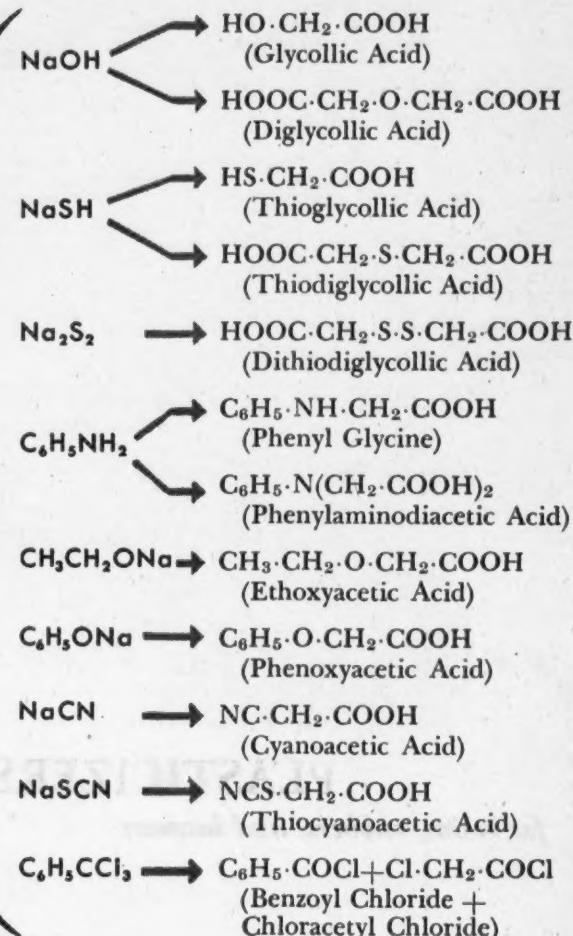
The electrode conforms to the proposed AWS-ASTM specification E Cu Si. Available in 3/32, 1/8, 5/32, 3/16 and 1/4 in. diameters.

AMPCO METAL, INC., Dept. CP, 1745 South 38th St., Milwaukee, Wis.

When inquiring specify CP 3952 — see handy form pages 2-3

# Its Readily Substituted Chlorine makes MONOCHLORACETIC ACID an important Intermediate

This versatile chemical is now being produced by Hooker as a technical grade material. Its ability to react readily with many different reagents is indicated by a few of the typical reactions shown.



Hooker Monochloracetic Acid is a fine, white, free flowing flake material with a sweetish odor. The technical grade has a minimum monochloracetic acid content of 98%, a maximum of 2% dichloracetic acid, and a melting point of 60°C min.

Additional physical and chemical data are given in Technical Data Sheet 752. Literature and samples are available when requested on your company letterhead.

**HOOKER  
ELECTROCHEMICAL  
COMPANY**

15 Forty-Seventh St., Niagara Falls, N. Y.  
New York, N. Y. Wilmington, Calif. Tacoma, Wash.

Caustic Soda Muriatic Acid Sodium Sulfide Paradichlorbenzene Chlorine Sodium Sulphydrate

When inquiring specify CP 3953 . . . see information request blank, pgs. 2-3

FEBRUARY, 1948



National Also Produces  
Adhesives for:

Bottle Labeling • Can  
Labeling • Carton Sealing  
• Package Wrapping •  
Ice-Proof Labeling • Trans-  
parent Sheetings • Glued-  
unit Carloading • Also  
"RESYN" adhesives

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

When inquiring specify CP 3954—see handy form pages 2-3

**National**  
ADHESIVES

Vegetable and mineral oils, olives, condiments, preserves, dairy products and mayonnaise bottles—because of the nature of their contents and methods of washing after filling—frequently reach the labeling machine greasy, wet or hot. These extreme conditions call for National's "HFN"—a specialty labeling gum that is relatively unaffected by oily surfaces, water or heat. "HFN" is non-crystallizing . . . tacky . . . short in consistency. It adheres difficult label stock to a variety of glass containers . . . provides good machinability . . . permits clean bottling. "HFN" gum—in its prewar formulation—is available for immediate delivery. Address: 268 Madison Avenue, New York. Plants: Dunellen, N. J., Chicago, Indianapolis, San Francisco.

**"Flexol"**  
Trade-Mark

## PLASTICIZERS

for resins, rubbers, and lacquers

FLEXOL Plasticizers are designed to meet the general requirements of compatibility and low volatility in resin and rubber compounding, and lacquer formulation. In addition, each FLEXOL Plasticizer is outstanding in producing one or more desirable properties such as low-temperature flexibility, resilience, or high impact strength.

A booklet on the specific uses of FLEXOL Plasticizers, Form 5882, may be of help in your application—write our nearest office for your free copy, and for samples and prices.

"Flexol" is a registered trade-mark of Carbide and Carbon Chemicals Corporation

**CARBIDE and CARBON**  
CHEMICALS CORPORATION

UNIT OF UNION CARBIDE AND CARBON CORPORATION  
30 EAST 42nd STREET UCC NEW YORK 17, N.Y.

OFFICES IN PRINCIPAL CITIES

When inquiring specify CP 3955—see handy form pages 2-3



## Materials

### Synthetic Detergents Equal Soap When Carbose is Added

*Carboxymethylcellulose, — technical grade available in commercial quantities*

**USES** — When this technical grade of carboxymethylcellulose—"Carbose"—is used with certain synthetic detergents, their laundering performance is said to equal, and in many cases excel, that of the best grades of soap.

**DESCRIPTION** — Now being manufactured in commercial quantities. It may be deposited as a sizing on fabrics, or used as a print base. It is an adhesive and a thickening and suspending agent, and is finding application in oil well drilling muds, in paper and paint and in the processing of ceramic materials and the molding of plastics.

WYANDOTTE CHEMICALS CORP., Dept. CP, Wyandotte, Mich.

When inquiring specify CP 3956  
— see handy form pages 2-3

\*

### Points Out Advantages of Sight Flow Meters for Liquid, Gas

Advantages and operation of the sight flow meter for liquid and gas flow measurement are set forth, with illustrations and factual data, in a 32-page catalog section.

Describes flexibility under changing operating conditions, high accuracy, linear flow characteristics, wide flow range, immunity of calibration to variations in fluid viscosity, basic principles, etc. Catalog Section 10-D.

FISCHER & PORTER COMPANY, Dept. CP, Dept. 9E-F, Hatboro, Pa.

When inquiring specify CP 3957  
— see handy form pages 2-3

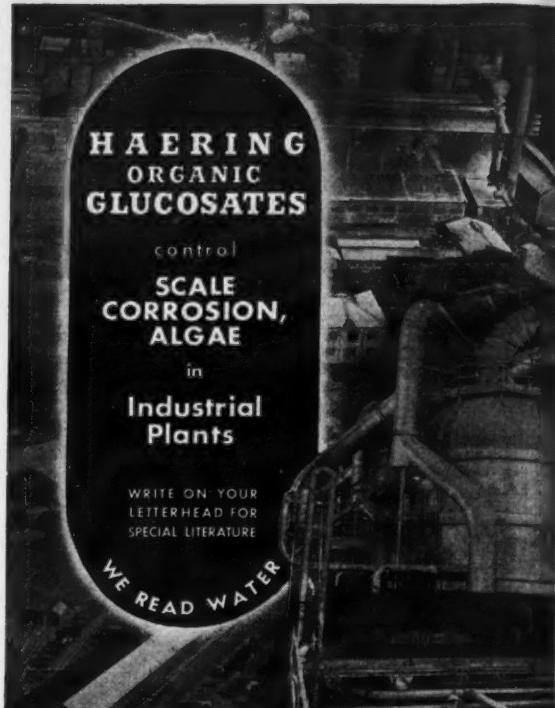
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### Stainless Steel Protects Brewery Processes

"Here's How to Safeguard Quality and Flavor" is a 4-page, illustrated folder showing applications of stainless steel in the brewing industry. Includes flow sheet showing strategic spots for stainless installations. Bulletin Ady. 481.

REPUBLIC STEEL CORPORATION, Advertising Div., Dept. CP, 3100 E. 45th St., Cleveland 4, O.

When inquiring specify CP 3958  
— see handy form pages 2-3



**D. W. HAERING & CO., Inc.**  
GENERAL OFFICES:  
**205 West Wacker Drive, Chicago 6, Illinois**

When inquiring specify CP 3959—see handy form pages 2-3

**ARCOS**  
STAINLESS ELECTRODES  
for A C welding

★ Stainlend Electrodes  
for Alternating Current  
Welding (Equally satisfactory for direct current, reversed polarity)  
— another product of  
Arcos leadership in Research and Production.

Contact Arcos if you require  
other grades for AC Welding

**ARCOS CORPORATION**  
316 Gulf Bldg., Phila., Pa.

\* WRITE FOR YOUR COPY  
The New Arcos Electrode Specification Chart gives useful information on all Arcos Ferritic, Non-Ferrous, and other special alloy electrodes.

When inquiring specify CP 3960—see handy form pages 2-3

**CHEMICAL PROCESSING Preview**

## Materials

### Submicroscopic Silica Powder Shows 99.9% SiO<sub>2</sub>

Average particle size is 0.01 to 0.05 microns

**USES** — On the basis of observations thus far, this silica powder can be employed as a pigment dispersant, extender or flattening agent in paints and lacquers, improving their brushing and protective qualities but adding no color to the dried film. Reinforcing effects are possible in its application to specialty rubbers and elastomers, where any introduction of color would be undesirable.

In textile manufacturing it can be used effectively in delustering fibers, increasing yarn strength, and accelerating spinning techniques. Investigations now under way may lead to the use of high purity fine silica powder as a flattening or opacifying agent in plastics as well as reinforcement.

**FEATURES** — In addition to its high purity and fineness of particle, another distinct advantage is its powder form so that it can be dispersed in either aqueous or organic liquids or incorporated as a dry powder.

**DESCRIPTION** — Now being produced in pilot plant quantities by Linde Air Products Company. This silica powder, over a wide range of concentrations, has been found to disperse in, or to blend satisfactorily with most organic or inorganic media (including water), and to remain in a stable homogeneous form indefinitely.

Control analyses of this powder show a minimum 99.9% SiO<sub>2</sub> content on a dry basis. Stable sols and high SiO<sub>2</sub> concentration, thixotropic or stable gels, dilutant liquids and other colloidal systems can be formed. The extremely fine particles of silica give rise to surface phenomena which make it a suitable catalyst carrier in chemical processes.

LINDE AIR PRODUCTS CO., Dept. CP, 30 East 42nd St., New York 17, N. Y.

When inquiring specify CP 3961 — see handy form pages 2-3

\*

### Cationic Agents Show Great Dispersibility in Acid Mediums

*Improve insecticides, sprays; useful as wetting agents*

**USES** — In processing yarns and fibers, in insecticides, agricultural sprays and the fatliquoring of leather. Useful as a wetting agent, dispersing and softening agents. Also, as antistatic and ore flotation chemicals as well as synthetic waxes.

**FEATURES** — An outstanding property of these surface active agents is one in which the oil phase of the emulsion is made substantive to cellulose. This is of importance in the textile applications cited above.

**DESCRIPTION** — Nopcogen — series of cationic surface active chemicals. Their unusual physical and chemical properties are attributed to the combination of fatty nuclei and nitrogenous chemicals. The higher molecular weight members of the series show an increasing degrees of basicity and have an improved and more complete dispersibility in acid mediums. Some of the series exhibit complete solubility in petroleum, vegetable oils, organic solvents.

NOPCO CHEMICAL CO., Dept. CP, Harrison, N. J.

When inquiring specify CP 3962 — see handy form pages 2-3

FEBRUARY, 1948



*Attasol...*

**remarkable  
new material!**

**Attasol** — an adsorbent mineral which gives stable colloidal suspensions, even in the presence of electrolytes—is finally available to industry. It is produced from the mineral attapulgite, which is classified as hydrous aluminum magnesium silicate.

Attasol displays the following characteristics, most of which are unique when compared with generally similar materials:

- 1 It is a naturally active adsorbent—of extreme value in removing impurities, cleaning and in reclaiming used materials.
- 2 Aqueous suspensions of Attasol gel rapidly on standing but revert to fluid condition immediately upon agitation.
- 3 When relatively small amounts of Attasol are well mixed with water, a rapid increase in viscosity takes place.
- 4 Attasol does not flocculate in the presence of electrolytes.
- 5 It wets very readily.
- 6 Attasol has a low bulk density—approximately 30 lbs./cu. ft.

Attasol's unusual properties open almost limitless possibilities for industrial use. It may provide answers for some of your problems. We'll be glad to send you a generous sample and cooperate in every way.

**ATTAPULGUS CLAY COMPANY**

Dept. J, West Washington Square, Philadelphia 5, Penna.

When inquiring specify CP 3963 . . . see information request blank, pgs. 2-3

# UNITIZED BELT CONVEYOR DOES WORK OF 6 HANDLERS

*Material Handling*

**Midwestern brewer uses standard 8 and 10' sections to slash manufacturing costs**

**PROBLEM** — High costs of handling beer cases by hand compelled a midwestern brewer to consider possibilities of mechanizing this material handling job.

**SOLUTION** — A unitized belt conveyor system 48' long consisting of standard 8 and 10' sections with 16" belt, was installed. Use of these sections is said to make possible conveyor lengths of from 9 to 200', using belt widths from 4 to 32". Adjustable to working heights of 30 to 36", they are available with beds and tables of hot rolled, cold rolled or stainless steel construction.

Demonstrating the versatility of this unitized system, 45 standard lengths of 99' or less can be quickly assembled, lengthened or shortened, from 8 and 10' sections, with additional lengths possible up to 200'. These accommodate slider bed widths of 10, 16, 22 and 34".

Equipment includes floor clips and angle supports, ball bearings, pillow block and take-up supports. Belt speeds are governed at will. Parts are interchangeable.

**RESULTS** — Six handlers were eliminated by the system, which paid for itself within a relatively short time. Costs were reduced by streamlined mass production.

COBURN-FOSTER CONVEYOR COMPANY, Inc., Dept. CP, 9362 Ewing Ave., Chicago 17, Ill.

When inquiring specify CP 3964 — see handy form pages 2-3



Unitized conveyor installation in midwestern brewery

## Portable 14 and 17' Conveyors Raise, Lower, Tilt or Level

**Adjustable units move 150-lb. packages at 20 per min; have 28" stroke hydraulic lift**



Unloading salt on "Fleximount" conveyor

vating-type freight conveyors  
**USES** — Horizontal and ele-  
for moving boxes, bags, car-  
tons, etc., in units up to 500  
lbs. or better. For stacking,  
storing, loading or unloading  
operations. For portable or  
permanent installation. Also  
special units for special  
needs.

**FEATURES** — Wide selec-  
tion of sizes, mountings and  
attachments. Unit illustrated  
offers maneuverability and  
adjustability in connection  
with various applications at  
different levels and in hori-

zontal or inclined positions. Can be made stationary when desired, or moved from point to point.

**DESCRIPTION** — Two boom sizes: 16" x 14' and 16" x 17'. Feeder and discharge attachments are optional, and not included in dimensions quoted. Elevating or horizontal, wheel or caster mountings. 14' model is available in 5 elevations, from 3' 9" low to 5' high, and from 6' low to 9' 6" high. The 17' model includes 5 elevation ranges, from 3' 9" low to 5' high, and from 5' 11" low to 10' 3" high.

28" stroke hydraulic center lift is supported by base assembly and attached to frame. 3" channel cross braces distribute load throughout width and length of base. Lift is actuated, controlled, by separate "power pack." Raises and lowers smoothly by means of long handle and quick release valve. An adjusting screw assembly with large handwheel, and the hydraulic center lift, enable adjustment

from horizontal to 30° incline. Base is mounted on 5" diam. swivel-type ball bearing casters, and floor locks are standard equipment.

Handles 150-lb. packages at 20 per min. Maximum unit load, 2 packages of 150 lbs. each. 1 hp motor is one-direction ball bearing electric; reversing if specified. 4-ply ruff top belt. 8" diam. pulleys, with head pulley lagged to prevent belt slippage under load. Two types of drive, counter shaft and gear head motor, are available. A 12-page "Freight Conveyor" bulletin contains additional information.

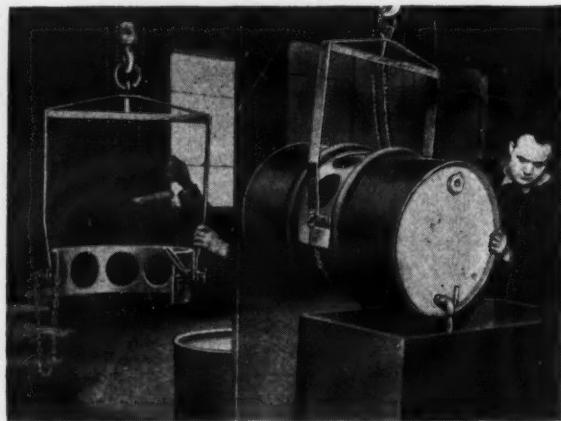
A. B. FARQUHAR COMPANY, Conveyor Division, Dept. CP, York, Pa.

When inquiring specify CP 3965—see handy form pages 2-3

### Drum Carrier Hooks to Any Monorail Hoist, Chain Fall

Fits all standard drums; speeds drum movements, dispensing and mixing work

**USES** — Drum-carrier device for use with any monorail hoist, crane or chain fall. Initial installations are reported highly successful for speeding drum movements, dispensing contents. For use in plants, on loading platforms or in outside yard operations.



Drum-carrier in operation

**FEATURES** — One-man operation. Always ready for service. Instantly fitted to, or removed from, existing lifting devices. Makes an efficient drum handling system out of existing facilities. Saves time and labor.

**DESCRIPTION** — Fits all standard-size drums. To use, simply hook to hoist, move to position, bring saddle around girth of drum and cinch tight. Raise hoist and move drum to desired location. To dispense contents, pull out tilt locks and tilt drum.

Positive tilt locks hold drum in vertical position and permit easy, controlled tilting to mix or dispense contents over receiving tank. Heavy-duty, all-steel construction. "Drum-Karrier."

THE FALSTROM COMPANY, Dept. CP, Falstrom Court, Passaic, N. J.

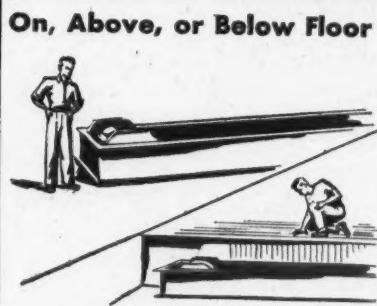
When inquiring specify CP 3966—see handy form pages 2-3

How **AJAX** LO-VEYORS

**MAKE IT  
EASY TO CUT  
NON-PRODUCTIVE  
COSTS**

**Throw Away Your Wheelbarrows**

Ajax Lo-Veyors have dozens of applications in moving bulk materials. Tubular or covered pan can provide dust tight, contamination-free operation.



Can be installed under railroad tracks for unloading hopper cars... can be set on the floor... can be installed below floor level... can be suspended from wall or ceiling. Ajax Lo-Veyors are complete units delivered ready to use.

**Short or Long Carries**

You can use Ajax Lo-Veyors for moving material distances of 5 ft. and up. Material can be moved from one operation to the next... plant layouts can be rearranged.

**Unharmed by Abrasives**

Ajax Shaker-Shaker drive unit is completely enclosed and runs in oil. Rubber bushed conveyor pan supports require no lubrication and are unharmed by abrasive materials. Ajax Lo-Veyor design eliminates conveyor belts, rollers, idler pulleys and bearings.

material but are low in first cost and low in operating and maintenance costs.

Under present conditions, savings on handling material are one of your most important opportunities for cost reduction. Ajax Lo-Veyors are being used by the Who's Who of Industry for moving dry materials,—explosive and non-explosive. Their record of satisfaction is one of their strongest recommendations. Write telling us what you have to move.

**AJAX FLEXIBLE COUPLING CO. INC.  
WESTFIELD, NEW YORK**

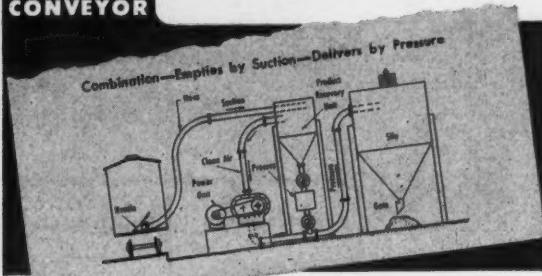
When inquiring specify CP 3967 . . . see information request blank, pgs. 2-3

**Save  
TIME  
and LABOR**  
**LOWER  
YOUR  
COSTS . . .**  
with this  
**BEAUMONT  
PNEUMATIC  
CONVEYOR**

This Beaumont Pneumatic Conveyor System is tailored to the requirements of the process industries. With it, you can move ores and fine, crushed or granular chemicals anywhere a pipe can be run. It's efficient in operation—saves time and labor and reduces handling costs.

The Beaumont Conveyor can be supplied to utilize suction or pressure or a combination of both, as illustrated. Sizes are available for capacities from 1 to 100 tons per hour.

Since the job and material to be conveyed determine the general design of the system—your best bet is to acquaint us with your particular problem and let us quote on the most efficient type and size to serve your needs.



**BEAUMONT BIRCH COMPANY**  
1516 RACE STREET • PHILADELPHIA 2, PA.

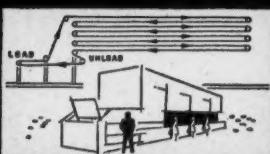
Designers Manufacturers Erectors

When inquiring specify CP 3968—see handy form pages 2-3

#### GREER MULTI-TIER CONVEYORS

Increase Production • Save Valuable Floor Space • Cut Materials Handling • Improve Product Quality

Greer Multi-Tier Conveyors can give you up to 800' of linear travel while requiring only 18' of floor space. For continuous cooling, heating or drying, it simplifies conversion from batch methods to continuous process. Write for Bulletin 45-3.



J. W. GREER CO.  
128 Windsor Street  
Cambridge 39,  
Massachusetts.

**GREER**  
MULTI-TIER

For Continuous Cooling, Heating, Drying  
MORE AND BETTER PRODUCTION IN LESS FLOOR SPACE

When inquiring specify CP 3969—see handy form pages 2-3

## Material Handling

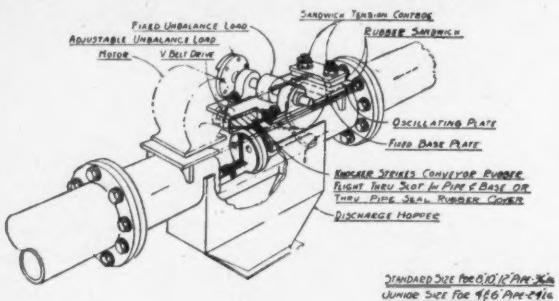
### Unbalanced Load Vibrator Cuts Power Needs to Minimum

*Assures positive discharge, near-noiseless operation with maker's circular flights*

**USES** — Unbalanced load vibrator for use as an accessory to manufacturer's rubber flighted, sealed pin, chain pipe conveyors. For positive discharge of materials.

**FEATURES** — Minimized power requirements. Almost noiseless operation.

**DESCRIPTION** — Vibration is delivered directly to rubber flight through a hole in the pipe and base. Under dust-tight conditions, impact bar is sealed. It



For Positive Discharge of Materials

#### Unbalanced load vibrator

is mounted on an oscillating plate held by a rubber sandwich which controls amplitude of oscillations by means of its adjustable compression.

Speed of rotation and amount of eccentricity determines force of repetitive impact. Since impact bar strikes only rubber portion of flight, it is practically noiseless. Action of vibration is localized to that portion of chain over the discharge opening, minimizing power required.

HAPMAN CONVEYORS, INC., Dept. CP, 2405 W. McNichols, Detroit 21, Mich.

When inquiring specify CP 3970—see handy form pages 2-3

### Stockpiler-Loader Adapts to Various Handling Operations

25, 30 and 35' lengths have plain or cleated 24" width belts, removable plates

**USES** — Stockpiler-loader for all types of unloading and stockpiling service. For bulk materials and general industrial use.

**FEATURES** — Reduces material handling costs. Flexible and adaptable under a variety of operating conditions.

**DESCRIPTION** — Available in plain or cleated belt width of 24" and lengths of 25, 30 and 35'. New type



Stockpiler-loader

gasoline or electric motor mounting provides low center of gravity plus protection from dust, dirt and weather.

Uses V-belt drive, 2 precision gear reducers and a shaft drive to head pulley. Three-unit belt carriers, mounted on welded steel bases, trough belt and minimize belt wear. Anti-friction bearings throughout. Removable tail pulley cover plate and hopper plates add to versatility. Strong, rigid stair-channel frame and simple, swiveling wheels. Model 363.

BARBER-GREENE COMPANY, Dept. CP, Aurora, Ill.

When inquiring specify CP 3971—see handy form pages 2-3

### Truck Step Retracts When Backed Into Platforms

*Non-breakable unit attaches by 4 bolts*

**USES** — Retractable step for installation on trucks. For use around loading platforms, walls, and wherever trucks require frequent backing.

**FEATURES** — Will not break when truck is backed against walls, docks or other obstacles. Saves time and



Retractable truck step

maintenance. Avoids jumping off and on trucks because of damaged or missing parts.

**DESCRIPTION** — Unit is attached to truck by four bolts. Should driver forget to retract the step, it slides back into frame or rack when truck is backed against any obstacle.

EXTENDO CORPORATION, Dept. CP, 4950 Melrose Ave., Los Angeles 27, Calif.

When inquiring specify CP 3972—see handy form pages 2-3

### Gas Burners, Combined Gas-Oil Burners Atomize Mechanically or By Steam

Gas burners and combined gas and oil burners for industrial boilers, heaters and furnaces or central station installation are the subject of a 4-page, illustrated bulletin. Various types for forced and natural-draft

## Material Handling

installations are shown, including straight mechanical oil atomizer, steam atomizing oil gun, air register and wide-range oil atomizer.

Includes cross-sectional diagrams, installation views, descriptive data. Bulletin 903.

PEABODY ENGINEERING CORPORATION, Dept. CP, 580 Fifth Ave., New York 19, N. Y.

When inquiring specify CP 3973—see handy form pages 2-3

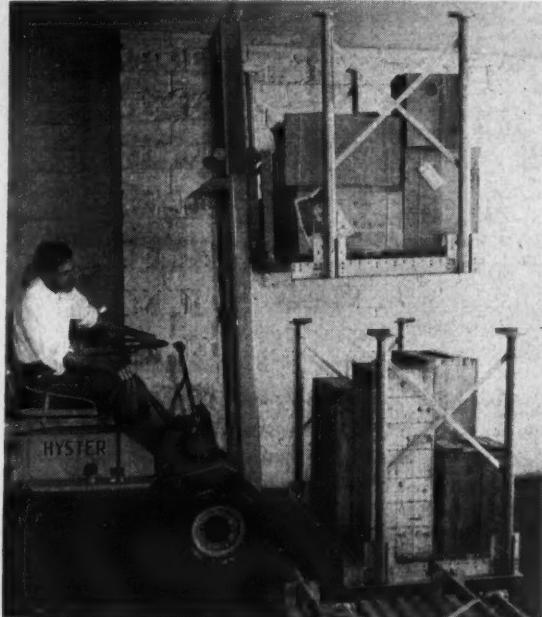
### Pallet's Folding Uprights Permit Stacking of Crushables

3000-lb. capacity aluminum units stack 3-high under 13' overhead; weigh 53 lbs. empty

**USES** — Aluminum stacking pallets for palletizing and stacking loads which are crushable or subject to flotation, either in transit or storage. Also for palletizing containers of different shapes and sizes in one stack.

**FEATURES** — Sturdy and light. Easily handled by one person when tubular tiering columns are folded flat. Stacking can be accomplished by any fork-lift truck of proper rated capacity. Easily, compactly stored when not in use.

**DESCRIPTION** — 3000 lb. load capacity per unit. Units may be stacked three-high where there is 13'



Stacking pallet for crushable loads

overhead clearance. Structural aluminum alloy construction, with four tubular columns at outside corners for supporting tiered loads. Columns fold down to top surface of pallet to facilitate handling and storage. Weight, 53 lbs. empty. Dimensional load, 48 x 36 x 48" high. Other sizes are obtainable.

TOBEY INTERNATIONAL COMPANY, Dept. CP, 7005 S. Western Ave., Los Angeles, Calif.

When inquiring specify CP 3974—see handy form pages 2-3

FEBRUARY, 1948

## PALMER-SHILE MATERIALS HANDLING EQUIPMENT



Item B-731 \$165.00

### DRUM and BARREL TILT

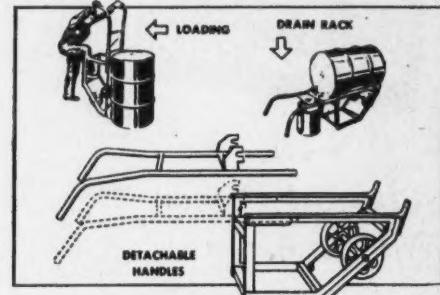
A barrel tilt for controlled, precision dumping or pouring. Ideal for chemicals, solvents, powders, etc. Turns 360° through worm drive. Equipped with two safety type locking devices and all steel, welded yoke. Hand-operated chain drive.

Weighs only 90 pounds, yet handles barrels weighing up to 1,000 lbs. with surprising ease. Sturdy frame, free rolling wheels and proper balance make light work of trucking the heaviest drums . . .

Tilt truck against drum, drop sliding steel grip over top of rim—rock truck back to wheeling position and loading is automatic.

To use as drain or storage rack detach handles to conserve floor space. Slight downward push on truck handles raises wheels and lays rack on floor in convenient draining position. One pair of handles will serve any number of trucks.

Heavy angle iron frame, tubular handles, all welded construction.



### TWO STYLES

With and Without Detachable Handles

Item NS-506 (Handles welded to frame) ..... \$42.50

Item NS-506 DH (Truck Complete with detachable handles) ..... 44.50

Item NS-506 R (Item NS-506 DH without handles) ..... 32.50

Item NS-506 H (Detachable handles only, for use with NS-506 R) ..... 12.00

Order by "Item" number. Prices F.O.B. Detroit. Weights approximate.

DESIGNED AND MANUFACTURED BY

**Palmer-Shile Co.**  
16016 Fullerton Ave., DETROIT 27, MICH.

When inquiring specify CP 3975 . . . see information request blank, pgs. 2-3

**The SMALL hoist  
with the  
BIG hoist features**

The Titan is a compact, lightweight, electric hoist; easily installed, simple to operate. It is inexpensive to buy, costs practically nothing to operate, handles loads up to 750 pounds; is fast and makes handling safer for both men and materials.

**Ask For**  
further information  
on this time saver and  
production increase;  
also for Titan Bulletin 801.

**Titan**  
**ELECTRIC HOIST**

DETROIT HOIST & MACHINE CO.  
5222 Morrow Street  
Detroit 11, Mich.

1 Trolley Suspension for traveling on a monorail.  
2 Hook Suspension—hang up and use anywhere.  
3 Plug-in-use single phase lighting current; but made also for multi-phase power.  
4 Cone Drive—continuous contact, the latest in worm gearing.  
5 Push-Button Control; quick, convenient and safe.

When inquiring specify CP 3976—see handy form pages 2-3

**HIGHER STACKING...FASTER...AT LOWER COST**

with a  
**Rapid-Power  
Booster**

Get full value from your storage space...stack goods to the ceiling...quickly...with less manpower. Rapid-Power Booster is an efficient power belt conveyor...easily rolled to the job...plugs into nearest electrical outlet. Equally valuable for loading and unloading. Can be coupled to Rapid-Wheel Gravity Conveyor line. Adjustable to various delivery levels. Made in three lengths...two belt widths. For low cost, efficient handling, be sure it's a Rapid-Power Booster.

**WRITE FOR YOUR COPY** of our folder showing all models and specifications.

THE RAPIDS-STANDARD CO., INC.  
350 Rapistan Bldg., Grand Rapids 2, Michigan  
Representatives in principal cities

**Rapids-Standard**  
**MATERIAL HANDLING EQUIPMENT**

When inquiring specify CP 3977—see handy form pages 2-3

Page 28

## Material Handling

### Battery-Driven Truck Tows Trailer-Trains

Has 500-lb. drawbar pull

**USES** — Battery-powered Jack-Tractor, or industrial tow truck, for towing trailer-trains. Also for pushing.

**FEATURES** — Speeds up warehouse operations. Increases usable storage space. Vertical handle operation provides maneuverability in close quarters, saves up to 18" aisle space.



Industrial tow truck

Master Drive unit may be replaced in 20 minutes, a feature useful in meeting production schedules. Elimination of collector rings and brushes for transmitting power from main frame to Master Drive unit means economical current consumption, reduced maintenance.

**DESCRIPTION** — Powered by 6000-lb. capacity Power

## Easier, faster handling

...when you move it with a

**YALE**

THERE'S A YALE  
HAND LIFT TRUCK  
TO FIT YOUR NEEDS

Send for catalog  
today, specifying  
type of truck in  
which you are  
interested.



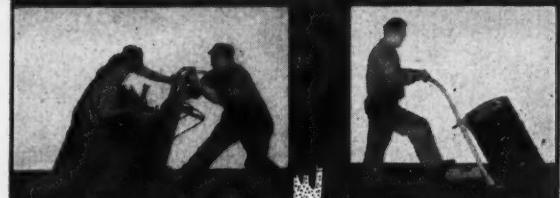
**YALE**

THE YALE & TOWNE MANUFACTURING CO.  
4530 Tacony Street Philadelphia 24, Pa.

ELECTRIC TRUCKS • HAND AND ELECTRIC HOISTS • KRON DIAL SCALE

When inquiring specify CP 3979—see handy form pages 2-3

## SAVE THE DIFFERENCE!



**3 MEN**

**Use the SABIN  
One-Man TRUCK for**

**1 MAN**

**DRUMS,  
BARRELS**

Type  
"L-3"



Your trucker will need no helpers when loading and moving containers up to 800 pounds, if you furnish him with a Sabin Type "L-3" truck. It loads automatically and is easy rolling.

THIRD WHEEL FEATURE insures better balance and added safety. It also permits loaded truck to stand alone.

Write for Bulletin No. 48-A

THE SABIN MACHINE CO.  
6534 Carnegie Avenue  
CLEVELAND 3, OHIO

ALSO TOTE PAN, BOX, CARBOY, KEG TRUCKS!

When inquiring specify CP 3978—see handy form pages 2-3

**Now** A TOTALLY NEW CONVEYOR THAT OFFERS THE

HIGHEST DEGREE OF SANITATION



U.S. and  
Foreign Patents  
Pending

HAMMOND

**Screw-Flo**

BOTH THE SCREW AND THE TUBE REVOLVE. SCREW AT ITS REGULAR RAPID SPEED, TUBE SLOWLY ABOUT TWICE A MINUTE. A REVOLUTIONARY DEVELOPMENT FOR BETTER INFESTATION CONTROL. VALUABLE TO ALL FOOD PROCESSORS. NOTHING CAN ACCUMULATE WITHIN THE SYSTEM.

SELF-CLEANING — SANITARY  
NOISE-LESS — DUST, MOISTURE AND  
VERMIN PROOF. ACCESSIBLE —  
COMPACT — PRECISION BUILT

Comes in standard assemblies with feed and discharge openings to suit your layout.

A companion unit to our popular Screw-Lift now so widely used by processors.

Send for Data  
**Screw Conveyor Corporation**  
699 HOFFMAN ST. HAMMOND, IND.  
ENGINEERS MANUFACTURERS  
TRADE MARK REG. U. S. PAT. OFFICE

When inquiring specify CP 3980—see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Material Handling

JackLift Master Drive unit. Max. drawbar pull, 500 lbs. Includes any specified standard or special type towing hitch.

Any or all controls may be operated with handle in vertical as well as all other positions. Electric brake applies instantly when handle triggers are released. Handle does not have to be moved to apply brake; when power is off, brake is on. Two-speed, brake, forward-reverse, raising and lowering controls, horn and lock-switch, all electric, are in handle head. Battery has work span of 8-10 hrs. with maximum loads.

LEWIS-SHEPARD PRODUCTS, Inc., Dept. CP, 297 Walnut St., Watertown 72, Mass.

When inquiring specify CP 3981 — see handy form pages 2-3

### Hydraulic Tail Gate Lift-Loader Saves Time, Breakage

Furnished in complete package for speedy installation on most standard 1-1/2 ton trucks



Hydraulic lift tail gate

Quickly installed. Furnished in a complete package.

DESCRIPTION — Platform remains level throughout entire travel arc, operating over full distance from ground to truck floor level, and swinging up to serve as a tail gate when truck is on road. The hydraulic pump is driven by truck's standard power take-off and is controlled by convenient lever. Models also are available for hand-lever operation.

THE DAY COMPANY, Dept. CP, 306 W. 69th St., Chicago 21, Ill.

When inquiring specify CP 3982 — see handy form pages 2-3

### 76-Page Catalog Covers Paint, Varnish, Maintenance and Power Brushes

A 76-page brushing catalog contains information intended to simplify selections of power, paint, varnish and maintenance brushes for individual jobs. Full line of wire and fiber wheel brushes is included. Photographs show various types of brushing setups as well as brushes in use. Brush characteristics, operating conditions, surface speeds, etc., are covered.

Indexed by brush numbers, also alphabetically and according to contents. Catalog 200.

THE OSBORN MANUFACTURING COMPANY, Dept. CP, 5401 Hamilton Ave., Cleveland 14, O.

When inquiring specify CP 3983 — see handy form pages 2-3

FEBRUARY, 1948

## SIMPLE ... COMPACT ... POSITIVE!



## LINK-BELT "Helicoid" SCREW CONVEYOR

High efficiency, low first-cost, and continued savings in power, maintenance and space, are leading advantages of Link-Belt Screw Conveyors, accounting for their wide acceptance where bulk materials are handled. Link-Belt "Helicoid" (continuous flight) conveyor is the original and standard. Has only one moving part, occupies minimum space, is positive and efficient.

Link-Belt makes all types of screw conveyors of both Helicoid and Sectional Flight design for every kind of service. Complete equipment—drives, fittings, and accessories are available for horizontal, inclined, and vertical installations.

As builders of the most complete line of conveying machinery, Link-Belt is in a position to offer a type of conveyor and associated equipment best suited to every situation. Whether you need only a minor part or a complete system, specify Link-Belt and gain the benefit of one source, one high standard of quality, one responsibility.

### LINK-BELT COMPANY

Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8.  
Offices, Factory Branch Stores and Distributors in Principal Cities.

# LINK-BELT

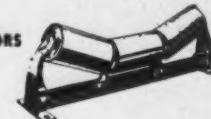


## CONVEYING MACHINERY

When inquiring specify CP 3984 . . . see information request blank, pgs. 2-3

## THE COMPLETE LINE OF LINK-BELT CONVEYING MACHINERY

### BELT CONVEYORS



### SCREW CONVEYOR



BULK-FLO  
Elevator-  
Feeder  
Conveyor



BUCKET ELEVATORS

### OVERHEAD CONVEYORS



OSCILLATING  
FEEDER-CONVEYORS



APRON & SLAT  
CONVEYORS



CHAIN CONVEYORS



FLIGHT CONVEYORS



BUCKET CARRIERS  
AND ELEVATORS



# Is THIS the pump you need?

## IT'S COMPACT

Pump and motor are combined in one rigid cast iron frame. Fits easily into close quarters—is quickly installed as a "package," and operates in any position—no shafts to align. Just bolt it down, make power and pipe connections, and start pumping. Capacities 15 to 1400 gpm, heads to 500 ft.

## IT'S EFFICIENT

Drip-proof motor is of Allis-Chalmers Lo-Maintenance design, specially built for pumping service. Pump has such long-service features as bronze wearing rings, new plastic water seal, five or more rings of packing, and first class construction throughout. Every unit is factory tested for efficiency, capacity and head.

## IT'S AVAILABLE

Many sizes of the Electrifugal and other smaller Allis-Chalmers pumps are now in stock for immediate delivery. Perhaps the size you need is ready. Phone or wire your nearest Allis-Chalmers office or dealer for up-to-the-minute information on availabilities and deliveries. For information on the complete A-C line of centrifugal pumps, ask for Bulletin B6059D. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN.

A 2381

Electrifugal, Pedrifugal, SS Unit and Texrope are Allis-Chalmers Trademarks.

# ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment—Biggest of All in Range of Industrial Products

When inquiring specify CP 3985 . . . see information request blank, pgs. 2-3

## Material Handling

Picks Up, Moves and Stacks  
1500-lb. Cylindrical Objects

*Handles various lengths and girths, holding loads horizontally, vertically, as desired*

**USES** — Combination roll-grip and upender attachment for fork lift trucks. For handling heavy cylindrical loads, of varying lengths and diameters, including 1500-lb. rolls of paper. Picks up and stacks.

**FEATURES** — Holds load firmly and safely at all times, and in any position required for traveling or stacking.

**DESCRIPTION** — Originally designed to pick up and stack 1500-lb. rolls of paper, unit is an adaptation of manufacturer's standard upender accessory which permits handling heavy cylindrical loads either in horizontal or vertical position.



Fork lift truck roll-grip and upender

One of the curved, vise-like arms is stationary; the other, hydraulically-operated, closes securely against the roll, holding load in any position required. Attachment mounts on a standard Townmotor Model LT-40 fork lift truck with maximum lift of 108" and capacity of 1700 lbs. at 20" load center.

TOWMOTOR CORPORATION, Dept. CP, 1226 E. 152nd St., Cleveland 10, O.

When inquiring specify CP 3986 — see handy form pages 2-3

\*



**PEDRIFUGAL**  
The new A-C pump for flexible Texrope V-belt drive. Capacities to 500 gpm, heads to 100 ft.



**SS UNIT**  
Close-coupled pump and motor units, made in 234 standard ratings, to 2500 gpm.



## Catalog Covers Complete Line of Vibratory Material Handling, Maintenance Equipment

92-page catalog describes manufacturer's complete line of: 1) vibratory material handling equipment and 2) construction and maintenance tools. Profusely illustrated. Part 1 includes electromagnetic vibrators, packers, vibratory feeders, dry feeder machines, weighing feeders, vibrating grizzlies, vibrating lawns, paper joggers, hopper level switches, explosion-proof hydraulically-operated feeders, vibrators, jolters and feeder machines, mechanical shaft seals.

Part 2 covers gasoline hammer paving breakers, portable electric hammers, drills, grinders, sanders, electromagnetic form vibrators, flexible shaft concrete mass vibrators. Syntron Equipment catalog.

SYNTRON COMPANY, Dept. CP, 405 Lexington, Homer City, Pa.

When inquiring specify CP 3987 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

**Buschman**  
"better-built"  
conveyors...

From receiving to shipping dock . . . through every operation in your plant, there's a BUSCHMAN CONVEYOR to exactly fit your needs. Buschman Engineers offer you the most modern materials handling equipment and techniques. Write for complete catalog.

The E. W. Buschman Co., Inc.  
Spring Grove and Clifton  
Cincinnati 32, Ohio

SLAT CONVEYORS • BELT CONVEYORS • PUSH BAR CONVEYORS  
VERTICAL BARREL CONVEYORS • CHAIN TYPE TROLLEY CONVEYORS  
GRAVITY ROLLER CONVEYORS • LIVE ROLLER CONVEYORS  
BUCKET CONVEYORS • TWO WHEEL HAND TRUCKS

# Buschman

When inquiring specify CP 3988 — see handy form pages 2-3

**FREE MOVING CRANES**

**For Low Cost Handling**

American MonoRail Cranes are available for any type of job. Low cost installation dovetails with low cost operation. They offer all the advantages of lightness, easy movement, strength, live-load capacity up to 5 tons.

Consultation with American MonoRail engineers will reveal why American MonoRail equipment has been selected to serve the nation's largest industrial plants. We invite your inquiry—no obligation of course.

**THE AMERICAN MONORAIL COMPANY**  
13109 ATHENS AVE. • CLEVELAND 7, OHIO

When inquiring specify CP 3989 — see handy form pages 2-3

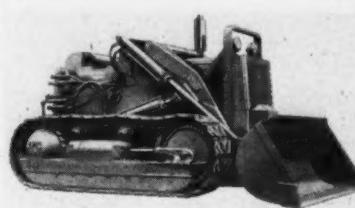
FEBRUARY, 1948

## Material Handling

### Bulldozer Shovel Has 1 All-Power Lever

Raises, lowers, holds or "floats" bucket, applies down-pressure

USES — 2-yard bulldozer-shovel, designed into international TD-14 diesel tractor. For use in a variety of bulldozing jobs consistent with size of tractor.



2-yard bulldozer shovel

FEATURES — Bucket extends full track width of tractor, permitting excavation, etc., close to walls, slopes or embankments. Full visibility in all directions.

DESCRIPTION — Also available in 1-yard size. Full track width bulldozer blade can be quickly attached. Automatic bucket tip-back tilts bucket back 38° in carrying position to prevent spillage.

Tracks are not tied down, oscillate freely to conform to ground contour, as in normal tractor operation. Front-end superstructures entirely eliminated. Power for all operations supplied by large-capacity, front-mounted hydraulic pump, directly connected to crankshaft.

Operator raises, lowers, holds or "floats" bucket by a single lever which also applies down-pressure for hard digging. Bucket may be dumped partially or completely at any height.

FRANK G. HOUGH COMPANY, Dept. CP, Libertyville, Ill.

When inquiring specify CP 3990  
— see handy form pages 2-3

### Hardened Sheaves, Pins, Are Long-Wearing

Illustrated, 4-page bulletin describes long-wearing sheaves and pins which save bushings, minimize replacement and downtime, reduce stockroom "spares" and increase rope life. Installation views and cross-sectional close-ups are included. Bulletin 947.

THE TOOL STEEL GEAR & PINION COMPANY, Dept. CP, Cincinnati 16, O.

When inquiring specify CP 3991  
— see handy form pages 2-3

# LEWIS-SHEPARD

## MATERIALS HANDLING EQUIPMENT

TRADE MARK of the widest line of completely engineered wheeled Materials Handling Equipment you can buy. Backed by 33 years' concentration in this field, these job-tested Lewis-Shepard products include . . . Electric and Gas Power Fork Trucks • Steel Bound Pallets • "JackLift" Electric Trucks • Hydraulic and Mechanical Hand Operated Lift Trucks • Skid Platforms • Hand and Electric Power Stackers • Storage Racks • Hand and Electric Power Cranes • General and Specific Purpose Hand Trucks.



**MR. DOLLAR CONSCIOUS!**  
YOU SHOULD HAVE THIS CATALOG OF  
MATERIALS HANDLING EQUIPMENT  
THE KEY TO NEW PROFITS!

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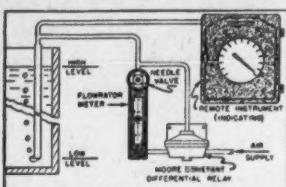


When inquiring specify CP 3992 — see handy form pages 2-3

Page 31

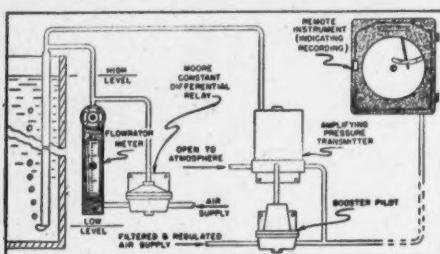
## Now... FLOWRATOR meters solve LIQUID LEVEL & SPECIFIC GRAVITY metering problems

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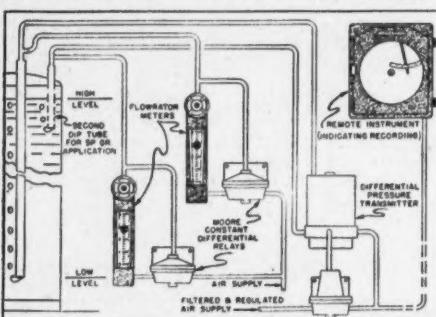


simple  
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Liquid Level Measurement in Open Vessel, with Amplifying Transmitter



Liquid Level or Specific Gravity Measurement in a Pressure Tank



The "C-Clamp" style FLOWRATOR meter was developed specifically for doing away with the bubbling bottle nuisance for purge line service and control instrument air supply. It replaced tedious and inaccurate bubble counting with direct immediate metering; replaced a bulky device containing a liquid filled bottle with a compact little instrument easily nested together on instrument panels.

Now this same "C-Clamp" style meter has been teamed with the Moore Products Constant Differential Relay to measure liquid level and specific gravity in open vessels and also in closed ones where a small bubble stream of air is not deleterious.

For complete construction details write for catalog 30

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**FLOWRATOR**  
TRADEMARK

When inquiring specify CP 3993 — see handy form pages 2-3

Page 32

## Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications

. . . as selected by Technical Editor, H. McCormack

### Determination of the Conjugated Dienes

Article describes a study of the Koppers-Hinckley-Podbielniak apparatus. Conclusions which resulted include: apparatus and method provide satisfactory results for a determination of 1, 3-butadiene in specification grade butadiene, but results obtained with mixtures of lesser purity are not always satisfactory.

Several determinations of conjugated dienes in every sample must be made in order to establish proper behavior of the apparatus with respect to reproducibility.

The complete method of analysis is critically presented and the data from various analyses are tabulated. Article includes 16 pages with 5 tables and analytical results. (From "Journal of Research, National Bureau of Standards", November, 1947)

purified. Methods used are indicated. Results as to heat of vaporization and heat capacities are tabulated for some 50 hydrocarbons. This 23 page article includes 3 figures and 4 tables. (From "Journal of Research, National Bureau of Standards", November, 1947)

\*

### Flow of Fluids Through Porous Media

A series of 3 articles including 34 pages presents a dissertation on the flow of fluids: first, single homogeneous fluids; second, the simultaneous flow of 2 homogeneous phases, and third, the application of previously propounded theories to a mathematical conception of filtration.

Customary mathematics of the flow of fluids through pipes has been expanded to cover all the cases cited. 14 figures and 4 tables illustrate the article. (From "Chemical Engineering Progress", Oct., Nov., Dec., 1947)

\*

### Electrodeposition of Tungsten Alloys

Presented in the 31 page article are the results of an extended research on methods of electrodepositing tungsten alloys with material containing iron, nickel and cobalt.

Composition of plating baths and operating current characteristics in relation to the character of the deposited alloy are discussed. Photomicrographs are included for alloys as deposited and after heat treating.

Cold and hot hardnesses were determined and tabulated. Hot hardness of the alloys is exceptional. Illustrated with 14 figures and 18 tables. (From "National Bureau of Standards Research Paper RP 1834")

\*

### Testing and Grading Wild and Plantation Rubbers

This 9 page article points out the necessity for a system of testing and grading wild and plantation rubbers for processing purposes. Indicates the wide variations in quality which may exist in consecutive samples from the same source. Describes and discusses methods employed, including chemical and physical tests. Suggests a method for grading based on these tests. One table and bibliography are included. (From "Rubber Age", Nov. 1947)

\*

### Water Treatment

Various methods of boiler feed water treatment, with suggestions as to when each should be used, are discussed in this 4 page article. Does not contain any new material, but information is tabulated in extremely usable form.

One photograph, 2 diagrams and 2 figures illustrate the article. (From "Industry and Power", December 1947)

\*

### Heat of Vaporization and Heat Capacity

Determination of these factors on a number of hydrocarbons were measured using a calorimeter developed by the Bureau of Standards. A description of the construction and operation of the calorimeter is included.

In these studies, the hydrocarbons used were carefully

### Quaternary Ammonium Compounds of High Molecular-Weight

Determination of these compounds as tri iodides is described in this 3½ page article. Increasing tonnage of



FOR more than 20 years, Farval has been saving money for users, through its successful performance on machines and industrial equipment of all kinds.

The Farval System is a positive mechanical method of delivering oil or grease under pressure to a group of bearings from one Central Station, in exact quantities, as often as desired. It consists of a central pumping unit, two main supply lines and a measuring valve for each bearing. The Farval Corporation 3257 East 80th Street, Cleveland 4, Ohio.



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CHEMICAL PROCESSING Preview

these compounds appearing on the market, chiefly admixed with other material, has emphasized the need for an analytical method to evaluate their presence.

Three variations of the procedures are presented, to be applied as conditions vary. Analytical results on various materials are tabulated. Five tables are included. (From "Analytical Chemistry", November, 1947)

\*

#### Radioactive Isotopes as Tracers

Article describes use of the radio isotopes for such purposes as determining the thickness of coating on rayon yarn, distribution of ink on paper, amount of cement around an oil well casing, the quantity of mercury vapor in the air in a factory using mercury, measurement of odd shapes, the detection of gas leaks, the measurement of wall thickness and customary chemical uses of the "tracers". Three pages including three figures. (From "Power Plant Engineering", November 1947)

\*

#### Machinery Foundations

2½ pages and 2 diagrams tell how machinery foundations problems were solved. Two examples involving different factors are given. (From "Southern Power & Industry", December 1947)

\*

#### Continuous Vacuum Crystallization of Ammonium Nitrate

23 pages in this article present the results of an experimental study on the crystallization of ammonium nitrate in such crystal forms as to be acceptable as a nitrogenous fertilizer; conditions to be met are stated. Customary commercial crystallizer for this type of material was tried and then modified in construction so as to yield a satisfactory product at a satisfactory rate.

Theory of crystallization of this particular material is presented, including discussion, calculations and graphs. Operating data, flow sheet, 10 tables, 16 figures and 3 pages of discussion are included. (From "Chemical Engineering Progress", December 1947)

\*

#### Properties and Measurement of Carbon 14

Article lists properties of Carbon 14 important to measurement and gives detailed outline and examples of procedure and techniques for effective C14 analysis, using a thin wedge Geiger counter. B-ray absorption effects are discussed as well as the systematic calibrations necessary when a counter system is used for detection. Four page article includes 7 figures and 4 tables. (From "Analytical Chemistry" Nov. 1947)

\*

#### Automatic pH Control in Water and Industrial Waste Treatment

This 7 page article describes and discusses several plants where the pH of effluent water is automatically controlled. Water treatment involved is varied. Elements entering into design are presented. Includes 13 figures and 1 table. (From "Industrial and Engineering Chemistry", November, 1947)

\*

#### Determining Traces of Acetylene in Air

Three pages in this article describe a method which can be used in determining the acetylene in air when the acetylene concentration is as low as 1 p.p.m. Method tested by using known quantities; results are tabulated. (From "Analytical Chemistry", November, 1947)

**NEW!**

# QUARTZ FABRIC MANTLE

**FOR SAFE HIGH TEMPERATURE HEATING**

Here's the answer to a problem that has stumped many a research or production chemist—how to get high temperatures, safely, for rapid distillations or special reactions. The new Glas-Col Electric Heating Mantle (first exhibited at ACS Show in December) operates up to 600°, because it's made of aluminum and quartz.

Every chemist knows the heat-resisting qualities of quartz, embodied in the quartz lining and insulation of the new mantle. They permit the continuous use of higher temperatures than were permissible with the standard line of glass fiber mantles. Since they are constructed like standard Series M mantles, temperature control is simple and easy...an important factor in many laboratory heating problems.

If you have problems involving rapid distillations or application of high temperatures, write Dept. CP for information.

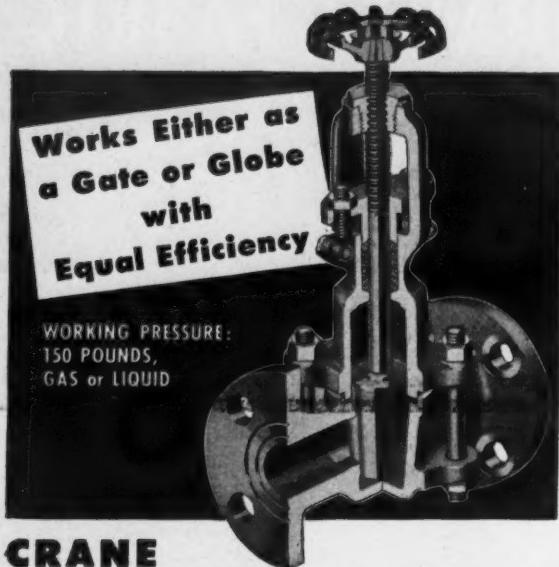
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U. S. Patent No. 2,282,078

**GLAS-COL** *Electric* HEATING MANTLES  
SPECIALISTS IN LABORATORY HEATING PROBLEMS

When inquiring specify CP 3995 . . . see information request blank, pgs. 2-3

# NEW Double-Duty VALVE



## CRANE ALLOY PLUG GATE DESIGN for Corrosive Services

This new and unique valve principle combines the flow characteristics of conventional gate and globe valve design. In wide open position, flow is straight through, with discharge equal to that of a wedge gate valve. For throttling, Crane Plug Gate design gives precise control of flow at high or low velocities. It resists wire drawing and cutting equally as well as a conventional globe disc valve.

### Ideal for Process and Chemical Industries

To process industries, Crane Plug Gate design brings new simplification of valve selection and maintenance, with new reparability...new economies in wider standardization of valves...new freedom from the costly results of misapplying gate or globe valves.

Made in 18-8 Mo and Monel Metal  
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To permit widest application under corrosive conditions, Plug Gate Valves are regularly furnished in two highly effective alloys. All parts in contact with flow are same as body material. All sizes have outside screw and yoke, bolted bonnet, and are made with flanged or screwed ends.

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Page 34

# Ideas

## Stainless Steel Flame-cut and Welded by New Method

*Flux injection overcomes stoppage of cut encountered in normal oxyacetylene practice*

Fabrication of stainless steel equipment by flame-cutting and welding is now possible and highly practical because of a new flux-injection method developed by the Air Reduction Company, New York 17, N. Y. The flux-injection method solves the problem of flame-cutting stainless steel with a special dry non-metallic flux, carried directly by the cutting oxygen stream, to cope with the refractory oxides formed by the alloying elements, which stop the cut in normal oxyacetylene practice.

The flux-bearing oxygen emerges through a standard tip to effect the cut. The only special equipment required is the compact and portable flux feeder unit. Speeds, costs, and quality compare favorably with the standards of mild steel work. The previous alternative for comparable results was machining.

Illustration shows parts of a 12-ft stainless and nickel-clad base for a hydropulper at Smith & Caffrey Co., Syracuse, N. Y.



Base units of Flux-injection welded Hydropulper

This hydropulper machine, designed by Dilts Machine Works, Fulton, N. Y. was built for the National Paper Corp., Ransome, Pa. It is used to reduce reclaimed paper and virgin pulp to slush form suitable for the paper making machines. The material is both highly abrasive, and with its admixtures, corrosive. The most advantageous materials for these operating conditions are nickel-clad steel, or chrome-nickel stainless, depending upon whether one or all surfaces would be exposed.

Flux-injection cutting was used for both materials. Much of the nickel-clad cutting was done on a 12 foot flanged head, produced by Lukens Steel, and the work was so designed that scrap loss from this head was virtually nil. (see illustration)

Sides for the tub which rest on the top rim of the base unit were also fabricated of Lukens Clad, rolled to

semi-cylindrical shape, with external stiffeners attached. Key numbers on the illustration indicate — (1) Flanged periphery of the head; (2) adjacent inner rim, removed by flux-injection, cut into radial segments, and drilled to form extractor plates; (3) bearing ring for rotor; (4) type 347 stainless vanes, finish-cut by flux-injection and welded to nickel cladding; (5) one half of the tub separately fabricated of nickel-clad, in position for checking alignment and fit-up prior to shipping.

The entire machine was shipped to the erection site in four main parts, saving time and space and greatly simplifying the whole procedure. (Air Reduction Sales Co., Lincoln Bldg., New York 17, N. Y.)

## Counter-Current Classifier Speeds Cullet Washing

*Provides thorough washing before mixing cullet with batch*

The glass industry has tried many methods of washing cullet prior to mixing it with the bath. In general, none has been entirely satisfactory. Now, however, equipment that was originally designed for a very different purpose is found to be ideally suited for this job. This is the counter-current classifier, a device



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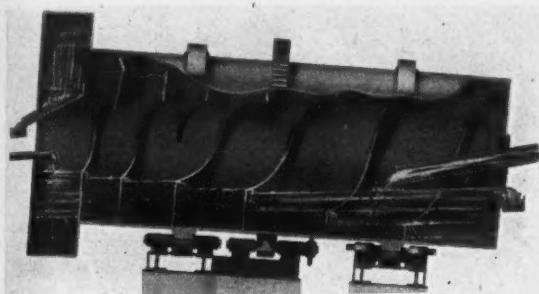
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INSTRUCTION BOOKLET**

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CHEMICAL PROCESSING Preview

designed for separation of coarse and fine suspended solids.

The classifier is an inclined, slowly rotating cylinder with a continuous spiral baffle running the entire length of the inner shell surface. (See illustration.)



View shows baffles, flow of material

A stream of wash water pours down over various stages of this spiral baffle. Cullet fed in at the lower end of this cylinder will gradually work its way to the discharge at the upper end of the cylinder along the spiral baffle, being constantly rolled over by the cylinder walls and agitated and washed by the descending water. (The counter-current classifier is made by the Hardinge Co., York, Pa.)

★

## Establish Standard Colors for Molded Urea Plastics

17 colors adopted by industry and Commodity Standards Division

A commercial standard for colors for molded urea plastics was announced late last year by the Plastics Manufacturers Association, Inc., and the Commodity Standards Division of the National Bureau of Standards. The new standard under the designation CS147-47 became effective Dec. 15, 1947 and concludes a two-year program of cooperation between the industry and the Bureau of Standards in establishing the list of seventeen colors as now adopted.

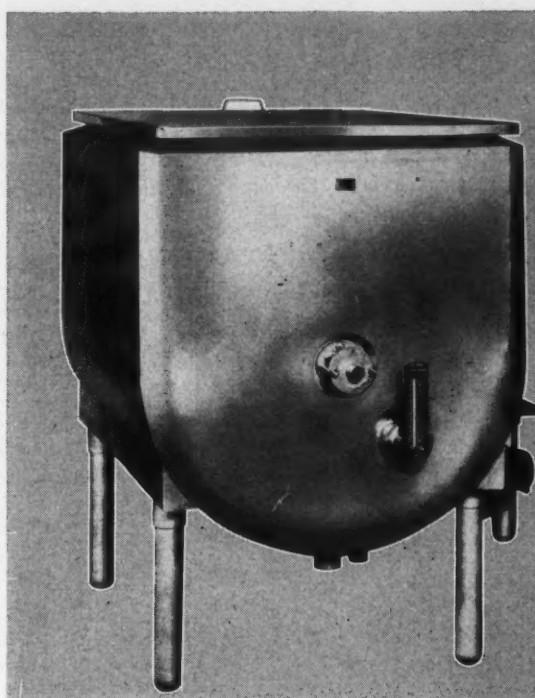
This should facilitate the procurement of colored molded urea materials and products. Through use of commercial standards, a more specific designation will be possible between molders, manufacturers and purchasers of goods as to exact color wanted; it will provide an easy method of ordering colors, and allow simplified contacts with purchasers of molded products.

Adoption of these standard colors is not intended to restrict the production of other colors and should not have such effect. Material manufacturers will continue supplying any colors desired by users of molded urea plastics when the amount involved warrants such runs.

Standard samples of the colors are available from Plastic Materials Manufacturers Association, Room 731, Tower Building, Washington 5, D.C. in complete sets of seventeen colors for \$2.50 per set, remittance to cover order.

The spectrophotometric data on the standard colors, required primarily for record purposes, are at this writing, incomplete. The data appears in the Commercial Standard. Mimeographed copies are available to acceptors of record.

## Another step forward in chemical processing



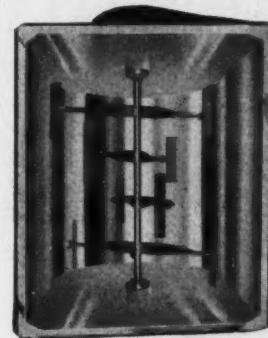
### THE NEW "CHR" JACKETED SAN-I-TANK HAS THESE ADVANTAGES

1. GREATER CAPACITY IN LESS SPACE
2. STAINLESS STEEL WELDED CONSTRUCTION
3. GUARANTEED AGAINST RUST AND CORROSION
4. BUILT LOW FOR FAST, CONVENIENT OPERATION
5. SMOOTH, HIGHLY POLISHED INTERIOR
6. NO PROTRUDING COILS
7. EFFICIENT MULTIPLE MIXING PADDLES
8. SPECIAL HIGH-PRESSURE JACKET

The CHR San-I-Tank is an entirely new design in jacketed tanks for processing liquid chemicals; either cooking or cooling. Operation is simple, convenient and fast . . . production is increased. The special construction of the jacket which is welded directly to the inner tank permits maximum "flooded-surface" contact. Tests have proven that a full tank of light liquid can be brought up to boiling within the short time of thirty minutes. Two inches of permanent glass-wool insulation prevent heat loss between the inner and outer shell of the tank and protect the operator.

At the right is a top view of the CHR Tank showing the smooth, highly polished stainless steel interior. There are no coils to clog or collect unsanitary waste. A series of eight heavy duty mixing paddles are arranged to speed processing by constantly agitating the liquid against the heated tank jacket. Scraper blades on the paddles prevent the mixture from sticking to the tank walls. CHR Jacketed Tanks are also available with propeller type agitator for mixing light chemicals.

Investigate this new tank before you buy. Send today for complete information.



### THE FINEST EQUIPMENT FOR CHEMICAL PROCESSORS

Type CJ Stainless Steel Jacketed Tank is a new, proven development for rapid cooking and mixing of liquid products. Tanks are equipped with vibrationless Rotary Seal Agitators. Working Capacities from 60 to 1,000 gallons.

These sturdy, stainless steel Stock Pots will give you a lifetime of use. They are guaranteed rustproof and noncorrosive and can be equipped with stainless steel nipples, covers and casters. Stock Pots come in 5, 10, 20, 30 and 50 gallon capacities.



## STAINLESS STEEL SAN-I-TANKS

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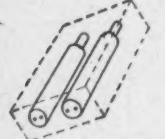
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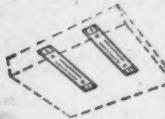
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## "How-to-heat" notes

### 1. For Dependable, Uniform SURFACE HEATING



Cartridge heaters in  
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Strip heaters clamped on



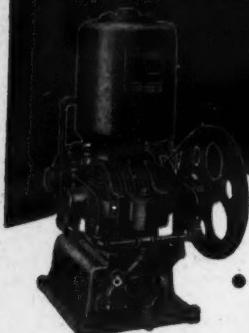
Tubular heaters cast in or  
in grooves

**GENERAL ELECTRIC**

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Work  
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Type RP Pump for moist vacuum operation includes automatic lubrication and air-oil-water separation. Capacities — 13 to 845 c.f.m. Corrosion resistant construction.

For improved product quality and safer, lower cost wet or dry vacuum processing, let Beach-Russ Rotary Piston High Vacuum Pumps give you real processing insurance. More efficient, highest maintained vacuum, quiet, low power, compact, long service life — these are the features packaged into every pump you pipe into your production line.

Write for Catalog No. 84.

**BEACH-RUSS COMPANY**

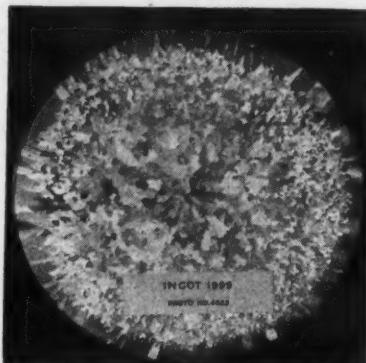
46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring specify CP 4000 — see handy form pages 2-3

## Ideas

### Electric Ingot Method for Controlled Metal Casting

Ingot progressively solidified in same container in which raw materials are melted



Micro-graph of cut from top end of cast high temperature billet

A method long recognized as fundamentally sound but never before successfully attained commercially. The new process was perfected by Kellogg over the last decade. The materials produced and the data so far obtained indicate that a new source of superior metals is available for industry.

Advantages of the process are: Uniformity. The accuracy with which the alloying elements are metered, combined with the fact that the ingot is progressively in the same container in which the raw materials are melted, provides not only uniformity of chemical analysis but also uniformity of physical properties. The usual transfer of hot metal from ladle to mold which might give rise to non-uniformity of product is eliminated. Uniformity is carried over from ingot to ingot. Quality: The alloy is substantially free from the defects observed in ingots produced by usual methods of alloy manufacture. Ductility:

Ductility is five to ten times greater in these new alloys. Cost: This process brings alloys having superior characteristics within the range of industry, at the same price which inferior alloys of the same chemical analysis now command. Size of ingots. The new process is literally a continuous casting method and there is no limit to the length of ingot it is capable of producing. Ingots as now made, however, vary in length between 6 inches and six feet so that they may be charged into existing heating furnaces.

Research heats of 25 to 50 pounds are produced quickly and without any special conditions in the same equipment used for volume commercial production. It is well known that the efficiency of a heat engine increases with advancing temperatures. The Kellogg Company is undertaking research itself and cooperating with others using this process toward producing new alloys capable of withstanding temperatures of 1500 degrees F. and higher.

Applications of the process include turbine wheels for turbo-jet aircraft engines and many other high temperature applications. During the war many tons of high speed tool steels were made by this process. Stainless steel alloys in this classification show definite improvement in machinability. (M. W. Kellogg Company, 225 Broadway, New York, N. Y.)

An electric ingot method for controlling metal castings has been announced by M. W. Kellogg Company. Alloying elements are continuously fed at a controlled rate into an electrical apparatus from which air is excluded, and in which an ingot of any desired analysis is produced by progressive solidification, a

bulletin No. BC-350 gives all the details on this new cutter.

Order from your Supply House

**FLEXIBLE STEEL LACING COMPANY**  
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Also sole manufacturers of Alligator Steel Belts, belting for transmission and conveyor belts; Alligator V-Belt Fasteners and Flexo V Fasteners, for V-Belts, Flexo HD Fasteners and Eye Plates; and Alligator Flexible Hose.

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## this label stays stuck



### CHEMICAL COMPANIES SOLVE THEIR DRUM LABELING PROBLEMS WITH KUM-KLEEN LABELS

Many chemical companies are faced with the problem of finding a label that stays stuck to containers even when exposed to temperature changes and handling.

Ordinary labels won't "take" it... will invariably pop or curl off. Self-Adhesive Kum-Kleens, because of their extraordinary characteristics, provide the solution.

Kum-Kleens stick and stay stuck to all types of smooth surfaces, flat or rounded, including metal, fibre, glass, etc.

They are unaffected by heat, cold, humidity, handling.

What's more, Kum-Kleens are applied far faster, because they require no moistening! And they peel off easily without harming the surface, a feature that makes them ideal for labeling "returnables."

IT WILL PAY YOU TO TRY THESE REMARKABLE LABELS. WRITE FOR SAMPLES TODAY. ADDRESS DEPT. CP-2.



SELF-ADHESIVE LABELS

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When inquiring specify CP 4002 — see handy form pages 2-3

**CHEMICAL PROCESSING Preview**

## Electric Immersion Heaters Are Easily Formed to Desired Shape

*Hung over sides of containers or used in jacketing applications*

Electric immersion heaters are practical and economical means of heating many types of low temperature industrial and laboratory tanks, kettles and baths, as well as devices having water or oil jackets. Calrod heaters, because of their convenience and versatility, are easily adapted for this type of heating. These are sold as straight lengths with various types of sheath materials, which can be formed to desired shapes for special applications. The Calrod heater consists of a helical coil of resistance wire centered in a seamless tube, packed with magnesium oxide powder for efficient electrical insulation and heat conductance, and tightly sealed from the air. Screw terminals are firmly connected to the resistance wire.

Calrod heaters with copper sheath are recommended for use in water-immersion applications, such as water baths, water tanks, etc. The various formations for immersion heaters can be hung over the side of the container. Calrod construction lends itself to bending, if certain rules are kept in mind. The heater is bent cold. The pin around which the heater is bent should be at least twice the diameter of the heater. The heater must be firmly clamped to prevent creeping.

The bend should be formed by a smooth, steady motion and should not be located within less than two inches of the point where the effective section begins at either end. The relatively long, cold terminals limit the generation of heat to the lower portion, which is well under water when in use.

A convenient application may be made with two Calrod heaters and three-heat switch. For High heat, both resistors are connected in parallel. For Medium heat, 1 resistor is connected; for low heat, 2 in series.

In applications where immersion heaters cannot be used directly in the liquid, a water or oil jacket should be arranged. Calrod units can be easily shaped to heat these units properly. A temperature control should be added to limit the water temperature below the boiling point. In the case of oil jackets the control should limit the temperature to below the flash point of the oil. In the immersion heating of oil, it should be noted that oil absorbs heat more slowly than water. Therefore, oil immersion heaters must have a lower watt-density of about 20 watts per square inch of heating surface, amply conservative to avoid carbonization. The sheath material is generally steel or chrome steel for oil immersion use to withstand heat, sulfur impurities.

Immersion heaters used in chemical solutions, such as sodium chloride, cleaning solutions, dyes and other substances must have a low-watt density to prevent encrustation on the sheath. It is necessary to consider carefully the sheath material so that excess corrosion will not take place. Calrod heaters may be used in many chemical solutions, where concentration is not too great, and where a chemical reaction will not result.

Of equal importance are Calrod's uses in low-temperature air heating such as ovens, drying chambers, hot plates, etc. Steel sheath Calrod heaters may be actually cast into iron to form electrically heated pots for melting tin, lead, babbitt and solder. (Summarized from Cenco News Chats — Central Scientific Co., Chicago 13, Ill.)

... A FULL RANGE OF STAINLESS STEEL WELDING FITTINGS FOR PERMANENT CORROSION-RESISTANT CONVEYING LINES

Tri-Clover now offers the most complete line of "Zephyrweld" stainless steel welding fittings in sizes from 1" through 24" O.D., fabricated in gauges from 16 to 10, for use with stainless steel light gauge O.D. tubing, in permanent installations where liquid conveying lines require positive protection against corrosion.

Employing modern, unique and proved methods throughout, the new "Zephyrweld" porosity-free fittings are fabricated from three standard stainless steel types ... 304, 347 and 316.

"Zephyrweld" fitting ends are cut flush for rapid welding. Because of their light gauge, no chamfering is required. Fittings can be flame cut for disassembly, used again by re-welding. For better, lower cost corrosion-resistant conveying lines, see your Jobber, or write for complete catalog.



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THE Complete LINE  
Stocks now carried by distributors strategically located throughout the United States

FABRICATED STAINLESS STEEL INDUSTRIAL FITTINGS AND INDUSTRIAL PUMPS

When inquiring specify CP 4003 . . . see information request blank, pgs. 2-3

## A WELL TYPE MANOMETER

... for Front-of-Board Mounting



### BY MERIAM

To meet the needs for mounting a manometer on the front of an instrument board, we are supplying this popular Model A-324-FB.

It is the well type, direct reading unit. The rectangular well detaches from the body, instrument body is mounted on front of board, the manometer well then reassembled and line connections made from back of board. This manometer is good for line pressures up to 100 lbs. per in. Available in ranges up to 100" - in steel, brass, or stainless steel construction. An attractive, efficient instrument that gives thorough satisfaction. Ask for Catalog C-11.

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WESTERN DIVISION:  
1418 Wilson Ave., San Marino 9, Calif.  
IN CANADA:  
PEACOCK BROS., LTD., MONTREAL

**MERIAM**  
Instruments

ESTABLISHED 1911

MANOMETERS, METERS AND GAUGES FOR THE ACCURATE MEASUREMENT OF PRESSURES, VACUUMS AND FLOWS OF LIQUIDS AND GASES

When inquiring specify CP 4004 — see handy form pages 2-3

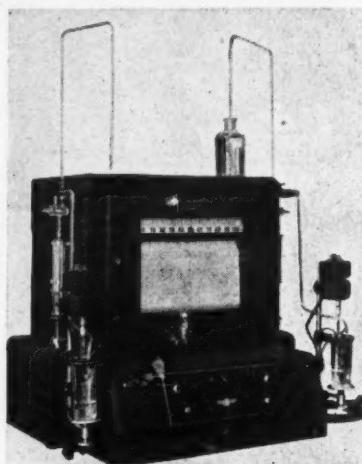
Page 38

## Process Instrumentation

### Instrument Records Titrations Automatically and Continuously

Five meter scale and potentiometric circuits provide total range of minus to plus 1.5 volts and full pH range of 0 to 14

USES — Recommended for routine control work, as well as experimental research in chemical, industrial and petroleum laboratories; for studying new reactions; for determining suitable indicators, for acidity determinations on petroleum products, and Mercapton determinations. Also



"Precision" Dow Dual Recordomatic Titrator

suit for aqueous and non-aqueous media. Can be used with silver, antimony, platinum, calomel or glass electrodes.

FEATURES — Provides a permanent and complete record of titration curves, easily reproducible and superior to the curves obtained manually. Eliminates all work on part of operator, except that of preparing solutions and loading the feed unit.

Titrations proceed rapidly; and since the device includes two complete titration set-ups, an important additional time-saving factor is introduced. While one sample is being titrated, a second sample may be prepared for analysis.

DESCRIPTION — Instrument consists of two parts: (1) a reagent feeding device, and (2) a recording potentiometer.

Reagent feeding unit includes two complete set-ups consisting of 50-ml. syringe to hold and feed reagents to the titration beakers containing the solution under analysis and the indicating electrodes. Solenoid-operated shifting permits selection of right or left system for titration. Syringe and strip chart are both driven by a relay-operated motor during titration. Syringe feeds reagent into the titration beaker at the rate of about 2.5 ml. per minute.

For recording and controlling the titration, a modified Brown Electronik potentiometer is used. Input to the potentiometer consists of a line-operated vacuum tube amplifier of the balanced tube type.

Titration control is concerned primarily with limiting the reagent so as to obtain recorded e.m.f. values which closely

approach equilibrium values. Fairly constant reagent addition is obtained during the early stages of titration, when buffering action is strong. Additions become more and more widely spaced as the end point is approached.

Recordomatic Titrator is completely line-operated except for a No. 6 dry cell in the potentiometer circuit. A plus or minus change in a 115 volt A.C. line results in a D.C. voltage change of only 0.1%.

PRECISION SCIENTIFIC COMPANY, Dept. CP, 3737 W. Cortland St., Chicago 47, Ill.

When inquiring specify CP 4005 — see handy form pages 2-3

★

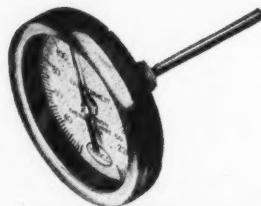
### Liquid Level Gauge Employs Leak-Proof Magnetic Coupling

USES — Designed to indicate accurately the level of the insulating liquid in a transformer, this gauge has applications for other liquid level measurement.

FEATURES — Unit is leak-proof and employs permanent magnets.

DESCRIPTION — Two sintered alnico permanent magnets separated by an aluminum diaphragm are used in the construction of this instrument. Gauge uses a float inside the tank to transmit the motion of the liquid to one of the alnico magnets. This magnet in turn transfers its motion by a powerful magnetic flux to a similar magnet placed on the other side of an

**NEW! NEW!**



### PRINCO "EASY-SETTING" DIAL THERMOMETERS

- 5 Standard Ranges — Fahrenheit or Centigrade
- "Easy-Access" Cases for Quick Setting
- Simplified Dial and Pointer Adjustment
- Rugged, Accurate, Bimetallic Unit

"Easy-Access" cases permit all adjustments to be made from the front, "on the job"!

Two case types: "Quick-Opening," with threaded frame; "Moisture-Proof," with bolted frame.

4" dial, 5 standard ranges, Fahrenheit or equivalent Centigrade, covering  $-100^{\circ}$  to  $+850^{\circ}$  F., or  $-75^{\circ}$  to  $+450^{\circ}$  C.

Stainless Steel stem in 4 standard lengths: 4", 6", 9" and 12". Separable sockets available. Write for illustrated folder.

**PRECISION THERMOMETER & INSTRUMENT CO.**

INSTRUMENTS **PRINCO** FOR INDUSTRY

1404 Brandywine Street, Philadelphia 30, Pa.

In Canada: PEACOCK BROTHERS Limited

When inquiring specify CP 4006 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



Liquid level gauge

aluminum diaphragm and attached to a dial indicator needle.

Aluminum diaphragm is pressure tight to 30 pounds per sq. inch, effecting a permanent seal between the liquid and the gauge proper. To effect a seal in the opening where the gauge is installed, the gauge flange is mounted with four studs to the side of the tank, usually below the maximum oil level and is then sealed by a hy-car gasket.

GENERAL ELECTRIC COMPANY, Dept. CP, Pittsfield, Mass.

When inquiring specify CP 4007—see handy form pages 2-3



## Midget Detector Locates Pipe Leaks Quickly

*Unit is portable and simple to use. Weight is less than two pounds*



Midget leak detector in use

**USES** — Instrument is useful for the location of leaks in pipe line systems and is also adapted for the investigation of vibrating or rotating machinery.

**FEATURES** — Ruggedly built and protected against heat and vibration. Battery drain is low, and electric current is only used when the push button is pressed during actual operation.

Batteries will stand up for more than 1,000 operations.

**DESCRIPTION** — Constructed of aluminum and employs miniature tubes with a special crystal pick-up. Metal contact tip or extension protrudes from the case and extension cord leads to the head set.

In operation, a leak is located by contacting valves, or the pipe at various points along its length and noting the intensity of the sound. The closer the leak is approached, the greater will be the intensity of the leak sound. If two points of like intensity are found, the leak should be half way between the two points.

On underground piping a bar may be driven into the ground which contacts the pipe. The bar is then contacted with the tip of the pickup of the leak detector.

FISHER RESEARCH LABORATORY, INC., Dept. CP, 1961-65 University Ave., Palo Alto, Calif.

When inquiring specify CP 4008—see handy form pages 2-3

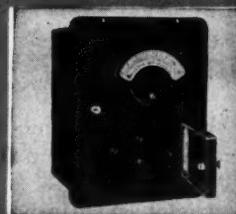
FEBRUARY, 1948

*Wherever there's water, there's pH...*

Beckman pH Control is the modern miracle tool with which industries of all types are boosting production efficiencies, reducing costs. No matter what your product or operation—whether metal finishing, power plant operation, agriculture, water supply, chemical processing, waste disposal, food processing, sewage and waste coloring, textile manufacture—to mention only a few rats, tanks or flow lines—investigate anywhere that can be made, perhaps, are already being savings your competitors, with the aid of modern Beckman pH Control.

Practically every major advancement in modern glass electrode pH control has been pioneered by Beckman—the simplification of laboratory equipment set up to today's practical, compact automatic pH indication, the introduction of compact Glass Electrodes for High, recording and control equipment. In the development of High and High Temperature Equipment the most advanced make Beckman

## There's a Beckman pH Instrument for every requirement



THE BECKMAN MODEL R

Large scale process control. Operates on standard AC current. Gives continuous pH indication and operates standard recording and regulating instruments for complete and continuous pH control.

THE BECKMAN MODEL G

A precision instrument for advanced research and laboratory pH investigations. It features an unusually wide range of special glass electrodes to meet every research and laboratory requirement.



THE BECKMAN MODEL M

combines simple operation with complete portability. Its entirely self-contained power supply is a vital feature in many plant and field applications. Uses standard Beckman Glass pH Electrodes and accessories.



THE BECKMAN MODEL H

combines compact portability with full AC operation. Recommended for industrial applications convenient to standard AC current supply. Uses standard Beckman Glass pH Electrodes.



### BRING YOUR pH PROBLEM TO US

Our trained engineers will gladly study your requirements and make recommendations on the type of equipment best suited to your particular needs. No obligation, of course.

*Send for this helpful free booklet! "What Every Executive Should Know About pH"—a non-technical discussion of pH, what it is, how it's used. A copy will gladly be sent you on request.*

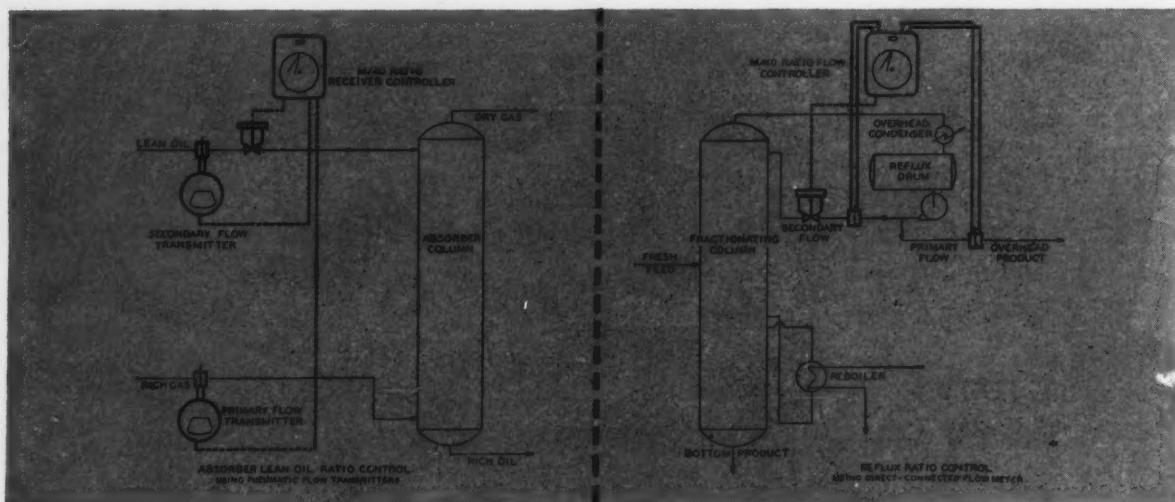
BECKMAN INSTRUMENTS  
National Technical Laboratories, South Pasadena 19, Calif.

INSTRUMENTS CONTROL MODERN INDUSTRIES

When inquiring specify CP 4009 . . . see information request blank, pgs. 2-3



# HERE'S Automatic HEAT ECONOMY PLUS CLOSER QUALITY CONTROL..



with **FOXBORO** Automatic Flow-Ratio Controllers  
on the Job . . .

BY CONTROLLING the flow of a liquid or gas in unvarying, continuous ratio to that of another, processes such as those illustrated can be streamlined to peak efficiency. Every change in the flow of the primary fluid is reflected by a proportional change in the secondary fluid flow, thereby maintaining a constant ratio between the two. The operation is precise, instantaneous, and completely automatic. Liquid level, pressure, and other process variables may similarly be ratio-controlled. (Controllers are also available to ratio more than one secondary flow to a common primary flow.)

The Foxboro Flow-Ratio Controller offers unique advantages both in its measuring system and its M-40 control mechanism. Its combination of accuracy, sensitivity, and simplicity is unrivaled.

The ratio mechanism has been specifically designed to maintain set ratios accurately through the whole range of the instrument. The desired ratio is easily obtained by turning a calibrated lathe wheel visible through the chart plate. The mechanism is a compact, rugged unit that fits into any Model 40 Controller.

Write for detailed information. The Foxboro Company, 190 Neponset Avenue, Foxboro, Massachusetts U. S. A.

**FOXBORO**  
REG. U. S. PAT. OFF.

# M-40

**FLOW-RATIO CONTROLLER**

THE ONLY CONTROLLER WITH *Permaligned* CONSTRUCTION

When inquiring specify CP 4010 . . . see information request blank, pgs. 2-3

## Process Instrumentation

### Inside-Outside Temperature

Dial thermometer uses Bourdon Tube principle; easily installed

USES — Provides accurate, convenient indication of both indoor and outdoor temperatures and may be used to show conditions in applications where two different temperature levels are of related interest.

FEATURES — Both temperatures are read at a glance from the same dial. Installation is quick and simple. When an indicating medium is conveyed through tubing from an outside bulb to a glass tube thermometer located indoors, the effect of room temperature introduces an error due to expansion. This instrument utilizes the Bourdon tube principle — actually operates on pressure rather than expansion — which makes the expansion effect of inside temperature a negligible factor.

DESCRIPTION — This Duo-temp thermometer is entirely mechanical. Upper scale, in black, shows outside temperature, and a lower scale in red shows inside temperature. Complete assembly includes mounting bracket and extension cord with tube.

JAS. P. MARSH CORP., Dept. CP, 2073 Southport Ave., Chicago 14, Ill.

When inquiring specify CP 4011 — see handy form pages 2-3



### Portable Indicator Determines CO<sub>2</sub> in Less Than One Minute

Excess air and per cent heat loss readily determined with combustion kit

USES — Kit may be used for combustion determinations on equipment burning bituminous coal, coke, natural gas and fuel oil.

FEATURES — Indicates CO<sub>2</sub> value directly, requires no preliminary adjustments, gives accurate, reproducible results, no operating skill needed.

DESCRIPTION — Kit includes CO<sub>2</sub> indicator, combustion indicator, and a rubber hand sampling pump with six feet of rubber tubing and metal sampling probes, all contained in a light weight case with handle.

Indicator consists of a transparent plastic barrel with aluminum end caps, inner stainless steel tube containing a dry CO<sub>2</sub> absorbing cartridge, a metal gravity piston, and an accurate gauge calibrated to read directly in per cent CO<sub>2</sub>. Gauge has a plastic dial cover.

In operation, gas sample is drawn from the stack and

CHEMICAL PROCESSING Preview



Thermometer, bracket, bulb, tubing

forced into the barrel by means of a rubber hand pump. Indicator is then inverted a number of times, moving the piston back and forth in the barrel to push the gas sample through the CO<sub>2</sub> absorbing cartridge. As the CO<sub>2</sub> is absorbed the needle of the gauge moves to indicate the correct percentage of CO<sub>2</sub> in the sample. Instrument is then ready for the next test without adjustment or other preparation.

Combustion indicator is a plastic computer, used to



Indicator has replaceable CO<sub>2</sub> cartridge

determine the percentage of heat loss and amount of excess air of four fuels — bituminous coal, natural gas, coke, and fuel oil. Use of the indicator eliminates mathematical calculations. The inner scale on one side shows per cent CO<sub>2</sub> and the outer scale shows stack temperature.

In operation, it is only necessary to turn the inner scale until the per cent CO<sub>2</sub>, as determined, coincides with the temperature of the stack gas, and through the window below read the per cent heat loss. Reverse side of the scale gives per cent excess air, suggestions for reducing heat losses, and recommended values for per cent CO<sub>2</sub> and excess air to achieve efficient combustion.

BURRELL TECHNICAL SUPPLY COMPANY, Dept. CP, 1942 Fifth Ave., Pittsburgh 19, Pa.

When inquiring specify CP 4012 — see handy form pages 2-3

#### Lists 23 Uses for Floatless Liquid Level and Industrial Controls

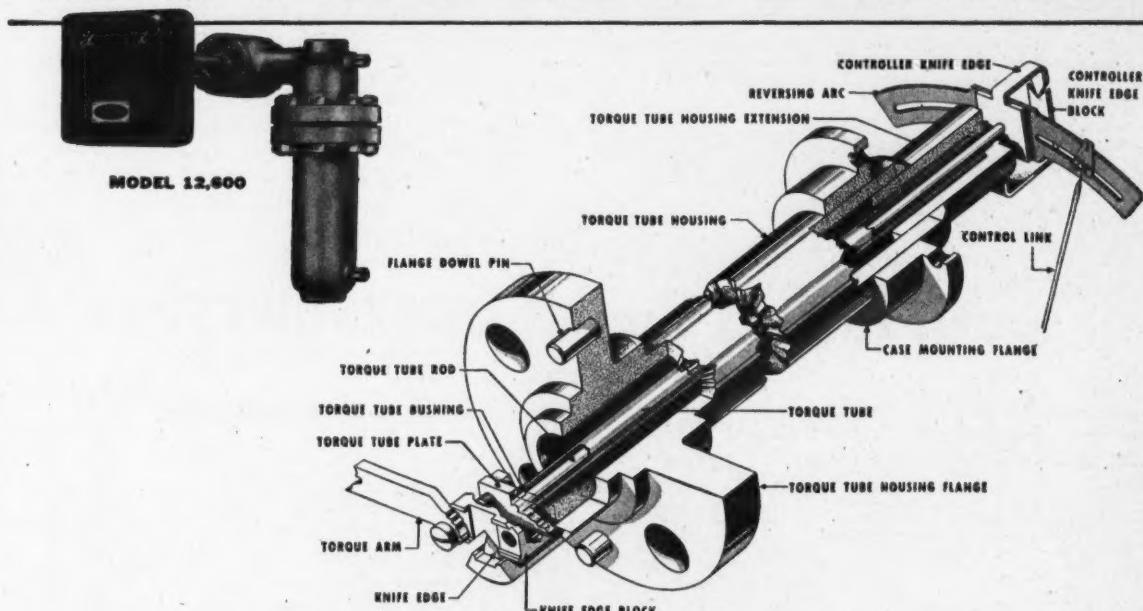
Floatless liquid level and industrial controls are discussed at length in a 28-page catalog. Literature lists 23 uses, including pumps for sump, acid, beer, milk, boiler feed, condensate return, general purpose, etc., flow signals metering supply to tanks, low voltage control for motor starters, other media which are conductors of electricity.

Contents cover operation, induction relays, multiple pump controls, electrode holders, electrodes, magnetic contactors and starters, AC combination starters, ice free control. Profusely illustrated with diagrams, tables and photographs. Catalog 147.

B/W CONTROLLER CORPORATION, Dept. CP, Birmingham, Mich.

When inquiring specify CP 4013 — see handy form pages 2-3

# MASONEILAN TORQUE TUBE DESIGN ASSURES *More Years* OF UNINTERRUPTED CONTINUOUS SERVICE



Actual field records prove that the torque tube . . . the heart of the Mason-Neilan 12000 series level controllers . . . gives years of service without failure.

The reason you are assured years of continuous uninterrupted service lies in the

design and construction of the torque tube assembly. The entire unit is built of a single alloy, inconel.\* This plus atomic-hydrogen arc welding gives homogeneity with highest mechanical strength and high resistance to corrosion and fatigue.

\*Type 316 stainless steel, monel and phosphor bronze also available.

## MASON-NEILAN REGULATOR CO.

1203 ADAMS STREET

Cincinnati San Francisco Los Angeles Houston  
Tulsa New York Buffalo Philadelphia Pittsburgh



BOSTON 24, MASSACHUSETTS

Cleveland Chicago Atlanta St. Louis  
Mason Regulator Co. of Canada, Ltd., Montreal and Toronto

When inquiring specify CP 4014 . . . see information request blank, pgs. 2-3

## Heat Measurement that's ACCURATE and EASY!



with the  
portable

**Alnor**  
**PYROMETER**

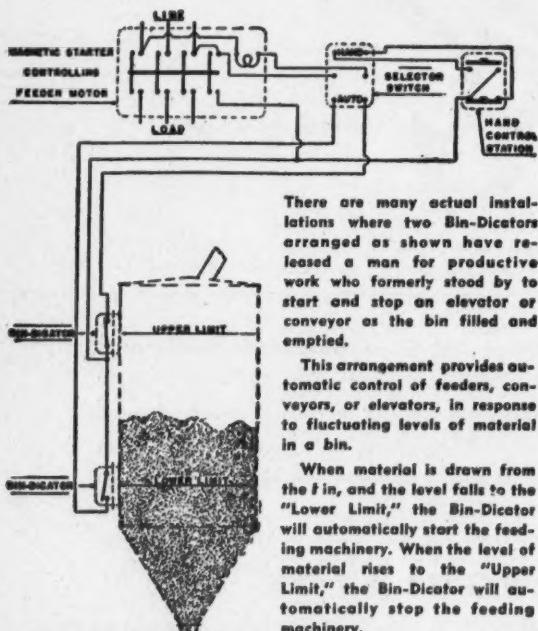
If you have a heat measurement problem, why not take a tip from production men in almost every industry who depend on rugged, accurate Alnor Pyrometers? There are sizes and types for a wide range of uses: for instance, Alnor type 1500 is a compact, portable, magnetically shielded pyrometer that brings laboratory accuracy to temperature measurement on the production line. Pyrometer movement is Alnor double air-gap type with Alnico magnet—product of skilled instrument technicians. This and other Alnor Pyrometers are fully described in bulletin 4361. Why not send for a copy now? Illinois Testing Laboratories, Inc. Rm. 304, 420 N. LaSalle Street, Chicago 10, Illinois.

**Alnor**

PRECISION INSTRUMENTS  
FOR EVERY INDUSTRY

When inquiring specify CP 4015—see handy form pages 2-3

## 2 BIN-DICATORS REPLACE 1 MAN



There are many actual installations where two Bin-Dicators arranged as shown have released a man for productive work who formerly stood by to start and stop an elevator or conveyor as the bin filled and emptied.

This arrangement provides automatic control of feeders, conveyors, or elevators, in response to fluctuating levels of material in a bin.

When material is drawn from the bin, and the level falls to the "Lower Limit," the Bin-Dicator will automatically start the feeding machinery. When the level of material rises to the "Upper Limit," the Bin-Dicator will automatically stop the feeding machinery.

**THE BIN-DICATOR COMPANY**

14616 E. JEFFERSON

DETROIT 15, MICHIGAN

When inquiring specify CP 4016—see handy form pages 2-3

## Process Instrumentation

### All-Metal Humidity Indicator Designed for Quick Reading

Slide Rule Calculator indicates relative humidity from 10 to 100 per cent



Quick-reading all-metal humidity indicator

proper setting according to the readings of the two thermometers, shows the percent relative humidity immediately. Eliminates the need for tables or psychrometric charts.

DESCRIPTION — Instrument is the wet and dry bulb type, employing the company's thermometers, with self-

USES — Instrument is useful wherever quick determinations of relative humidity are required in the plant or laboratory.

FEATURES — Provides readings of relative humidity accurate within plus or minus 1 per cent for general conditions. One movement of the slide on the calculator, located on the face of the instrument beneath the two dial-face thermometers, to the

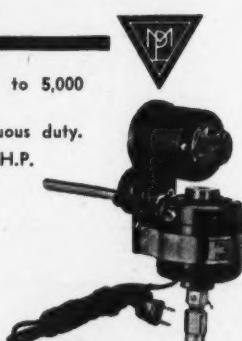
proper setting according to the readings of the two thermometers, shows the percent relative humidity immediately. Eliminates the need for tables or psychrometric charts.

DESCRIPTION — Instrument is the wet and dry bulb type, employing the company's thermometers, with self-

## LABORATORY STIRRERS

with COMPLETE Speed Control

- Rheostat speed control to 5,000 R.P.M.
- Standard motor, continuous duty.
- Plenty of power — .01 H.P.
- Stainless steel mounting rod.
- Can be clamped to any standard laboratory support.
- Rugged chuck, for  $\frac{1}{4}$ " rod.
- Operates on 110 volts AC or DC.



MODEL 7605

\$17.25

This is just ONE of our complete line of high quality laboratory stirrers — of all kinds, for all purposes. Tell us your needs. We will be glad to advise you.

WRITE FOR DESCRIPTIVE BULLETIN 3404-W.  
Our New COMPLETE CATALOG is NOW READY.  
Write today for your copy.

**PALO-MYERS INC.**

81 READE STREET • NEW YORK 7, N.Y.

When inquiring specify CP 4017—see handy form pages 2-3

## Complete TIMING SYSTEMS

FACTORY  
ENGINEERED  
& ASSEMBLED

Wherever one or more electrically operated devices must function in accurate relation to each other—for both duration and sequence—Timers can, in most cases, do the controlling job most accurately and efficiently. Complete panels, built to specified space limitations on machines or processes, may be comprised of interwired Timers, relays, push buttons, circuit breakers, switches, indicator lights, etc.—delivered as a unit package by ATC, ready for simple installation and hook-up to one clearly marked terminal block. ATC has supplied thousands of such systems to complete satisfaction of users. Write for a copy of "The Case for Engineered Time Controls".



TIMERS: STANDARD LINE AND SPECIAL  
AUTOMATIC TEMPERATURE CONTROL CO., INC.  
5212 PULASKI AVENUE • PHILADELPHIA 44, PA.

When inquiring specify CP 4018—see handy form pages 2-3

## For The Measurement Of CORROSIVE FLUIDS

*Without*

### Mercury Seal Pots Purge

Republic pneumatic transmitters, of the force-balance type, for the measurement of flow and liquid level are now available with "Teflon" measuring diaphragms. All metal parts in contact with the measured fluid can be 316 stainless steel, Monel or bronze as specified.

Republic transmitters operate on the pneumatic force-balance principle in which the force developed across a diaphragm by differential pressure is balanced by the force developed under an external diaphragm by pneumatic pressure.

Mercury is not used, and the development of corrosion resisting materials permits the introduction of many highly corrosive fluids, such as concentrated sulphuric acid and acetic acid, directly into the measuring chambers without the use of seal pots, separating liquids or purges.

Special designs are also available which eliminate the use of seal pots on the measurement of hot liquids which congeal at atmospheric temperature.

Write for Data Book  
No. 1000.

**REPUBLIC FLOW METERS CO.**

2240 Diversey Parkway, Chicago 47, Illinois

When inquiring specify CP 4019—see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Process Instrumentation

supporting wet-bulb wick covering the thermal element. Unit is light weight and well balanced, and can be swung about if desired to create air movement.

Dry bulb gives the free air temperature. Wet is surrounded by a wick saturated with water. Evaporation of the water cools the wet bulb below free air temperature by an amount proportional to the rate of evaporation. Rate of evaporation depends upon the amount of water vapor already in the air. The smaller the proportion of moisture in the air, i.e., the lower the percent humidity, the greater the rate of evaporation and the lower the wet bulb temperature.

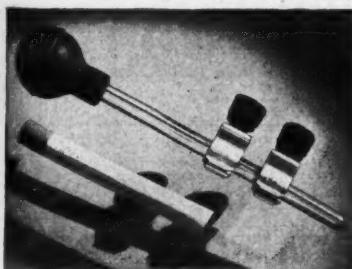
In very rare cases the air is perfectly still, and a cloud of water vapor may gather around the wick, retarding natural evaporation. The inaccuracy this might introduce may be avoided by hand swinging, forcing the air past the wick to carry away the vapor cloud.

WESTON ELECTRICAL INSTRUMENT CORPORATION,  
Dept. CP, Newark, N. J.

When inquiring specify CP 4020—see handy form pages 2-3



### Conductivity Cell Operates With Minute Liquid Samples



Micro conductivity cell

**USES**—Originally designed for the study and checking of human eye fluids, this cell has other applications where only minute quantities of samples are available.

**FEATURES**—High cell constant of 100. Operates with .05 to .10 cc. of solution.

**DESCRIPTION**—Squeezing and releasing the rubber bulb draws the minute liquid sample up into the thick-walled glass tube where it comes in contact with precisely spaced electrodes. Electrical connections are established by clip-on terminals snapped over external bands on the glass tube, which in turn are wired through the glass to the electrodes.

INDUSTRIAL INSTRUMENTS INC., Dept. CP, 17 Pollock Ave., Jersey City 5, N. J.

When inquiring specify CP 4021—see handy form pages 2-3



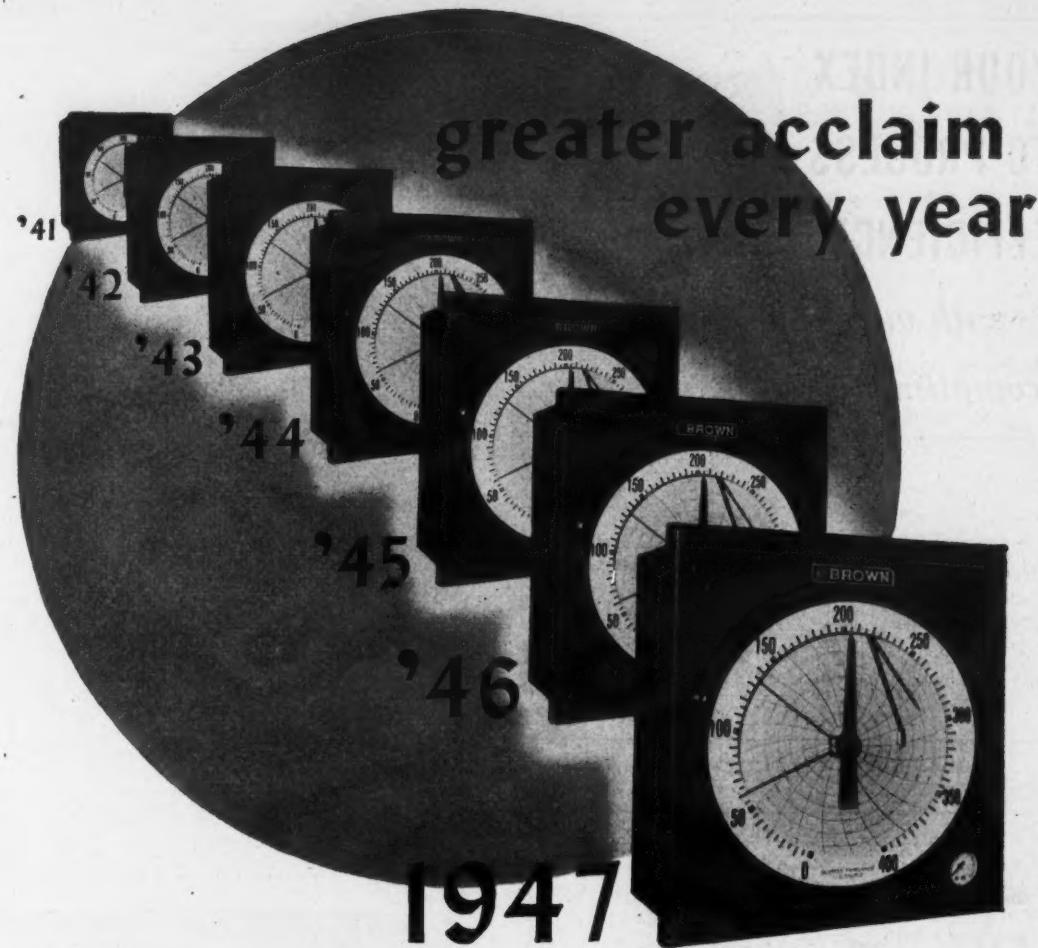
### Accurate, Line-Operated Electronic pH Meter Is for Laboratory, Industrial Uses

Line-operated electronic pH meter for laboratory and factory applications is described, with illustrations, in a 14-page bulletin. For pH measurements, acid-base titrations, oxidation-reduction titrations. Accuracy is stressed.

Literature describes features, applications, operation, etc., also other models. Bulletin 110.

PHOTOVOLT CORPORATION, Dept. CP, 95 Madison Ave., New York 16, N. Y.

When inquiring specify CP 4022—see handy form pages 2-3



*Electronik performance proved...  
by Seven years in chemical service.*

Each year industry accords greater acclaim to the Brown Electronik Potentiometer. Reviewing the record—seven years ago these "acclaims" were merely claims for a new and revolutionary type instrument.

In 1941 the story of the Brown Electronik was almost unbelievable. Today it is a proven reality backed by an unparalleled performance record.

Time has proven another important fact—the Brown Electronik Potentiometer requires only negligible maintenance. This fact alone is the reason why hundreds of plants have standardized on the Brown

Electronik. Increasing purchases by previous users is gratifying proof to the men who have designed and manufactured this instrument.

Every year further substantiates the fact that the Brown Electronik Potentiometer is the most remarkable industrial instrument development of the decade.

THE BROWN INSTRUMENT CO., 4421 WAYNE AVE., PHILADELPHIA 44, PA.  
DIVISION OF MINNEAPOLIS-HONEYWELL REGULATOR CO.

Subsidiary Companies in Toronto • Mexico City • London • Stockholm • Amsterdam • Brussels • Zurich

**BROWN**

Advanced Instrumentation  
FOR BETTER PROCESSING

MINNEAPOLIS  
**Honeywell**

When inquiring specify CP 4023 . . . see information request blank, pgs. 2-3

**YOUR INDEX  
TO PROCESS  
EFFICIENCY**  
*with our  
compliments*



This is our new, general catalog W1800, "Specification Index for Bristol Automatic Controlling, Recording and Indicating Instruments." It contains 24 pages of condensed information telling how Bristol instruments promote efficiency in industrial processes. Illustrations show basic methods of applying various types of instruments. If you use, or contemplate using instruments, we'll gladly send you a copy without obligation.

**THE BRISTOL COMPANY**  
141 Bristol Road, Waterbury 91, Connecticut

When inquiring specify CP 4024—see handy form pages 2-3



- Unit pilot valve easily removed.
- Precision built — superior workmanship.
- Stainless Steel Parts.
- Reduced maintenance cost.

... with STAINLESS STEEL RE-  
NEWABLE VALVE and SEAT  
and UNIT PILOT VALVE.

300 Lbs. or 1 Lb. for Steam or Air  
High initial pressures can be readily  
reduced in one step to pressure as  
low as one pound without change of  
springs and will be maintained con-  
stantly from no flow to full flow re-  
quirements and hold tight on dead  
end service.

Used by leading chemical process  
companies.  
Write today for Descriptive Bulletin  
No. 48.

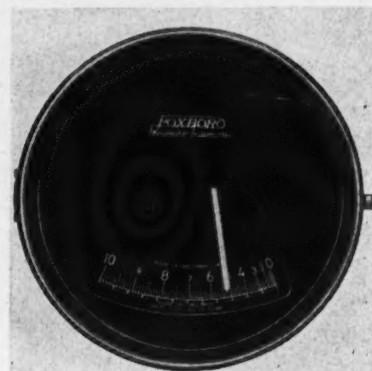
**O.C. KECKLEY COMPANY**  
400 W. MADISON STREET CHICAGO 6, ILLINOIS

When inquiring specify CP 4025—see handy form pages 2-3

*Process Instrumentation*

**Pneumatic Transmitter Aids Industrial Process Measurements**

*Transmitter and receiver are exactly matched and perfectly linear in calibration for improved accuracy*



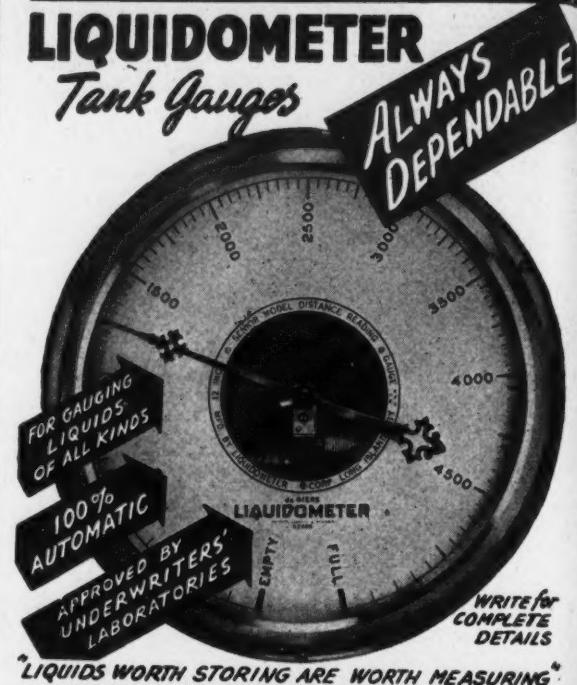
Model 42 pneumatic transmitter

and simplified calibration. Dial designed for quick and easy reading.

**DESCRIPTION** — Indicator type instrument, available with either an eccentric or concentric scale. Built in round case for outdoor installations or where protection from dust or fumes is essential. 12 inch case, which permits better location of the instrument parts, facilitates

**USES** — Transmitter is useful on many industrial process measurements such as flow, static or differential pressure, liquid level, temperature or humidity.

**FEATURES** — New transmitting element provides improved accuracy in transmission



**THE LIQUIDOMETER CORP.**  
38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP 4027—see handy form pages 2-3



**The TABER ABRASER** is easy to operate  
... gives a permanent, accurate rating

Duplicating—in measurable terms—the rubbing abrasion encountered in actual service, the Taber Abraser enables you to determine in advance the inherent surface wearability of paints, lacquers, plating, textile, leather, rubber, metals and many other materials. Saves time required for wear performance tests—gives a permanent, accurate value rating for research studies as well as for production control.



YOURS on request—Manual explaining fully the Taber Method and the reasons why it pays to pre-test. (Also included—brochure on stiffness and resilience testing with the Taber V-5 Stiffness Gauge.)

**TABER INSTRUMENT CORP.**  
106 CP Goundry St., North Tonawanda, N.Y.

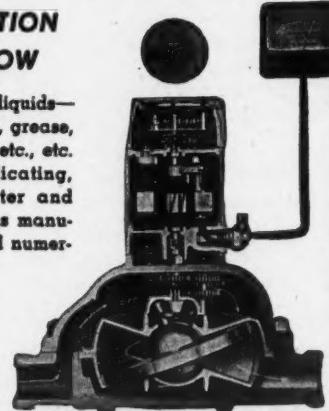
**The Taber Test Proves What Wears Best!**

When inquiring specify CP 4026—see handy form pages 2-3

**HAYS VERIFLOW**  
TOTALIZING-INDICATING  
METER  
Featuring  
REMOTE INDICATION  
OF RATE OF FLOW

For practically all liquids—tar, molasses, crude oil, grease, paint, varnish, syrups, etc., etc.—for measuring, indicating, totalizing flow of water and chemicals in continuous manufacturing processes and numerous other uses. Its remote indicating feature is new—get the complete story.

**SEND FOR  
BULLETIN 46-766**



**The HAYS CORPORATION**  
HAYSTON COMBUSTION INSTRUMENTS AND CONTROL MICHIGAN CITY, INDIANA, U.S.A.

When inquiring specify CP 4028—see handy form pages 2-3

# Surface PYROMETERS

for every purpose

The routine use of CAMBRIDGE Surface Pyrometers takes the guesswork out of temperature determination in many industries. The CAMBRIDGE is accurate, dependable, rugged, quick-acting and easy to use. The Roll Model is for checking surface temperatures of still or moving rolls. The Needle Model is for insertion into materials in a plastic or semi-plastic state for within-the-mass temperature determination. The Mold Model is for checking surface temperatures of mold cavities and surfaces of almost any contour.

Send for Bulletin 194SA.

CAMBRIDGE INSTRUMENT CO., INC.  
3706 Grand Central Terminal  
New York 17, N. Y.

**CAMBRIDGE**  
PIONEER MANUFACTURERS OF  
PRECISION INSTRUMENTS

Moisture Indicators and Recorders • Physical Testing Instruments  
Surface Pyrometers • Laboratory Instruments for A. C. & D. C. • Galvanometers  
Engineering Instruments • Gas Analysis Equipment • Physiological Instruments  
and many other Mechanical and Electrical Instruments

When inquiring specify CP 4029 — see handy form pages 2-3



## Process Instrumentation

field servicing, and also provides room for additional units, such as alarm or signal devices. Model 42 transmitter is illustrated and described in Bulletin 409.

THE FOXBORO COMPANY, Dept. CP, Foxboro, Mass.

When inquiring specify CP 4031 — see handy form pages 2-3

## Moistmeter Checks Sand Moisture Quickly and Accurately

Portable electric tester permits moisture tests to depths of 30 inches



Moistmeter in use

**USES** — Instrument is used to check moisture of sand in the pile, bin, or in a sample can as small as a quart. Suggested possibilities for use include the testing of moisture in many granular materials.

**FEATURES** — Provides a fast and accurate method for moisture testing.

**DESCRIPTION** — Sand under test is held within a curved sampling plate similar to the cup formed by hand and compressed to a definite degree by means of a spring loaded arm. Sand slides through the sample cup and wipes the electrodes as the instrument is pushed into the sand pile. Thus a moisture test may be made at any depth up to 30 inches from the surface of the sand pile.

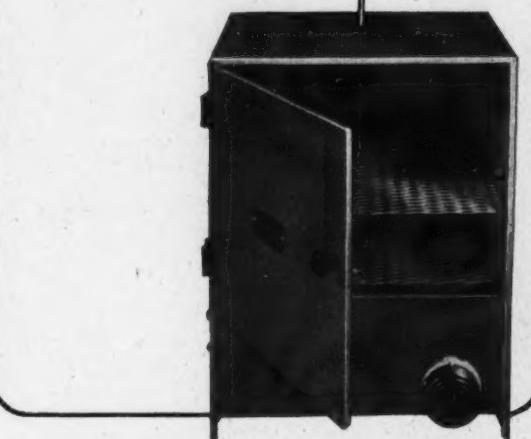
Moistmeter is equipped with a dial thermometer to measure the temperature of the sand being tested. Operator moves the left hand dial pointer to agree with the reading of the dial thermometer. This compensates for the temperature of the sand. Percentage moisture may be read directly from the upper dial.

Since electrical characteristics vary for each type of sand it is necessary, when exact moisture percentage readings are desired, to calibrate the unit. For this purpose a "sand factor" for each type of sand is established and adjustment on the instrument is made to compensate for this.

HARRY W. DIETERT CO., Dept. CP, 9330 Roselawn Ave., Detroit 4, Mich.

When inquiring specify CP 4032 — see handy form pages 2-3

## THE SARGENT ELECTRIC DRYING OVEN . . .



The Sargent electric drying oven was designed to fill the need of chemists for a dependable, low-cost, automatically controlled oven with a long service life. That it has achieved this objective is evidenced by the fact that thousands of these ovens are now in use in laboratories all over the world.

**THE MULTIPLE CHROMEL WIRE HEATING ELEMENTS** are arranged to give even heat distribution throughout the entire oven.

**THE VENTILATING SYSTEM** provides rapid transfer of air through the oven, which results in an exceptionally fast drying rate.

**THE METAL WALLS** are lined with  $\frac{1}{4}$ " Transite, to prevent excessive heat loss and the bimetallic thermostat maintains the heat in the oven to within  $\pm 1^\circ$  C. of the desired temperature.

**THE OPERATING RANGE** is from slightly above room temperature to  $200^\circ$  C. ( $392^\circ$  F.).

**ALL CONTROLS**—the three heat switch—the thermostat control and the pilot light—are located on the front panel which is actually the front of a drawer on which the heating elements are mounted. By removing two screws at each end of the panel the entire heating and control systems can be removed from the oven as a single unit.

**MAXIMUM POWER CONSUMPTION** 850 watts. Dimensions: Outside,  $16'' \times 11\frac{1}{4}'' \times 11\frac{1}{8}''$ . Inside  $9'' \times 11\frac{1}{4}'' \times 11\frac{1}{4}''$ .

**S-63995 OVEN**, Sargent, Automatic Electric, with Thermostat. Complete with shelf, thermometer ( $-10^\circ$  to  $+200^\circ$  C. and  $0.1^\circ$  subdivisions), pilot light and cord and plug for standard 115 volt A.C. or D.C. outlets. Each..... \$40.00

**S-64005** Ditto—but for operation from 230 volt A.C. or D.C. circuits..... \$41.00

## SARGENT

SCIENTIFIC LABORATORY EQUIPMENT AND CHEMICALS  
E. H. SARGENT & COMPANY, 155-165 EAST SUPERIOR ST. - CHICAGO 11, ILL.  
MICHIGAN DIVISION 1959 EAST JEFFERSON - DETROIT, MICHIGAN

When inquiring specify CP 4033 — see handy form pages 2-3

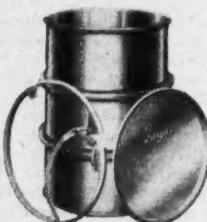
FEBRUARY, 1948

When inquiring specify CP 4030 — see handy form pages 2-3



## Slash CONTAINER MAINTENANCE Costs

Down come container maintenance costs when you use barrels and drums of Enduro—because this lustrous metal resists corrosion, resists hard use and abuse, never needs repainting or refinishing and lasts indefinitely. Enduro is safe to use, too, because it neither affects nor is affected by most chemical and food products.



You'll find just the style and size you need in the STEVENS Line. Write us for further information.

\* \* \*

*Easy to open—easy to close—that's the patented Ringlox closure shown at the left. It insures a positive and permanent seal—and you may have it on STEVENS Products.*

NILES STEEL PRODUCTS DIVISION  
REPUBLIC STEEL CORPORATION  
DEPT. CP., NILES, OHIO



**STEVENS**

METAL BARRELS AND DRUMS

When inquiring specify CP 4034 — see handy form pages 2-3

Page 46

## New Literature

### Dry and Wet Process Screens Are 1 to 4 Decks, 6.6 to 50.0 sq. ft. per Screen

"Gyro-Centric" screens for dry and wet processes are illustrated and described in a 12-page bulletin. Especially suited to close-tolerance separations, models are shown with single, double, triple and quadruple deck screens for making 2, 3, 4 or 5 separations. Screen areas range from 6.6 to 50.0 sq. ft. per screen.

Features such as a special mesh-cleansing device and almost level screen box motion for positive conveying action are pointed out. Literature lists 123 materials successfully screened. These include dry screening, separating, classifying, cleansing, reclaiming and general dry process work; also wet sifting or screening of liquids, dewatering operations, etc. Catalog 477.

THE PATTERSON FOUNDRY and MACHINE COMPANY, Dept. CP, East Liverpool, O.

When inquiring specify CP 4035 — see handy form pages 2-3

\*

### Corrosion-Resistant "Y" and Angle Valves Adaptable to Air-Operated Motors

Corrosion-Resistant "Y" and angle valves are the subject of a 4-page bulletin. Adapted to air-operated motors and other mechanical means of operation, their internal construction is shown in detail. Parts consisting of special corrosion-resistant alloys are indicated by means of color.

Bulletin touches briefly upon types of service for which these units are best suited, and supplies complete dimensional data, also illustrated parts list. Tells how valves can be equipped with air-operated diaphragm motors for automatic regulation of the flow of corrosive solutions. Bulletin 615.

THE DURIRON COMPANY, INC., Dept. CP, Dayton 1, O.

When inquiring specify CP 4036 — see handy form pages 2-3

\*

### Reduced Weight, Less Space Are Features of Shaftless Squirrel Cage Motors

Rolled shell, shaftless squirrel cage induction motors for built-in drives are shown and described in a 16-page bulletin. Profusely illustrated with photographs and explanatory data concerning applications for metal and wood working, special machines.

Listed advantages include reduced weight, conservation of space, elimination of alignment and coupling problems, permissible selection of motor characteristics best suited to each operation, high speeds without belts or gears, etc. Details of electrical and mechanical features, mounting, ventilation and applications are included. Bulletin 516-D.

THE LOUIS ALLIS COMPANY, Dept. CP, Milwaukee 7, Wis.

When inquiring specify CP 4037 — see handy form pages 2-3

\*

### Describes Properties, Uses of Manufacturer's Line of Synthetic Resins

Properties and uses of manufacturer's full line of synthetic resins are described in a 20-page technical book-

let. Mainly rosin-base, these include methyl esters of rosin, resins primarily for cellulosic lacquers, ester gums, glycol esters of rosin, a series of rosin maleates, pentaerythritol resins, Petrex resins, poly pale esters and Staybelite esters.

A 2-page chart matches resins with their actual and potential uses, and includes page numbers on which various resins are discussed. Resins described are said to have wide applications as protective coatings, adhesives, paper and textile sizes, essential oils and fixatives, linoleum and floor tile, etc. Form 951.

HERCULES POWDER COMPANY, Dept. CP, Wilmington, Del.

When inquiring specify CP 4038 — see handy form pages 2-3

\*

### Self-Contained Temperature Regulators Handle Steam Up to 125 psi

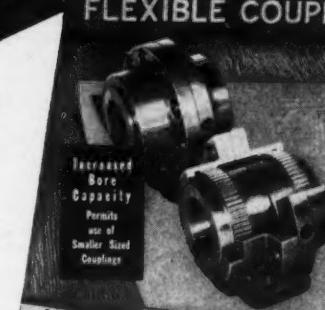
How accurate temperature control can be obtained at reasonable cost for many industrial applications such as hot water storage heaters, jacketed kettles, heated or cooled tanks, dryers, ovens and other process heating and cooling equipment is told in a 4-page, illustrated bulletin.

Features of these self-contained, self-acting temperature regulators are pointed out, including single-seated construction in all sizes for steam pressures up to 125 psi; packless main valve; hard-faced seating surface

Let this catalog show you  
the BEST buy in COUPLINGS

WALDRON  
FLEXIBLE COUPLING

Proved  
by  
Sales



Increased  
Bore  
Capacity  
Permits  
use of  
Smaller Sized  
Couplings

JOHN WALDRON CORPORATION  
Main Office & Works — NEW BRUNSWICK, N.J.

COUPLING DIVISION

**JOHN WALDRON CORP.**  
Main Office and Works  
New Brunswick,  
New Jersey

COUPLINGS

When inquiring specify CP 4039 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

and hardened wearing parts; liquid-filled thermostatic element. Sizes from  $\frac{1}{2}$  to 4" inclusive for steam pressures to 125 psi (175 psi liquid), temperatures to 450° F. Includes data on selection, installation, operation and maintenance. "Controlled Heat" bulletin.

LESLIE COMPANY, Dept. CP, 90 Delafield Ave., Lyndhurst, N. J.

When inquiring specify CP 4040 — see handy form pages 2-3

★

**Portable Vacuum Has 1-1/2 cu. ft. Dirt Can, on Casters; Tool Pan and Push-Rail**

Operation and components of an improved 1-1/2 hp industrial portable vacuum cleaner are illustrated, with descriptive data, in a 4-page bulletin. Principal features include a large, 1-1/2 cu. ft. dirt can which is rolled away on casters for emptying; a pan for vacuum tools at base, and a metal rail around top which enables operator to move machine quickly in any direction.

Standard unit is operated by universal motor, but unit of same capacity is furnished belt-driven for DC or multi-phase use. Manufacturer's standard hose and tools are used with this unit, and a wet separator is available for collecting wet materials, liquids. Specifications are tabulated. Bulletin 112D.

THE SPENCER TURBINE COMPANY, Dept. CP, Hartford 6, Conn.

When inquiring specify CP 4041 — see handy form pages 2-3

★

**"Thermodynamics" is Volume 2 of Chemical Process Series**

"Thermodynamics" (368 pages) is part 2 of a 3-volume series on "Chemical Process Principles." Chapters discuss thermodynamic principles, thermodynamic properties of fluids, expansion and compression of fluids, thermodynamics of solutions, physical equilibrium, chemical equilibrium and thermodynamic properties from molecular structure. Indexed both by subject and author, also 7-page table of symbols, 6-page appendix.

Authors: O. A. Hougen and K. M. Watson. Price, \$5. Parts 1 and 3 concern "Material and Energy Balances" (\$5) and "Kinetics and Catalysis" (\$4.50), respectively. Remit direct to publisher, name below, or inquire on slip.

JOHN WILEY & SONS, INC., Dept. CP, 440 Fourth Ave., New York 16, N. Y.

When inquiring specify CP 4042 — see handy form pages 2-3

★

**Table Shows Relation of Sag to Belt Length; Multi-V Differences Often Exaggerated**

Relation between sag and belt length is tabulated in a 1-page bulletin. Literature points to "exaggerated" ideas of differences in lengths between V-belts on a Multi-V drive. It shows, for example, that in the case of a belt on a drive with 50" centers which has sagged 2" below a belt which is tight, the sagging belt is actually only two-tenths of an inch longer. Increased length increment decreases as the center distance increases, the table shows.

Fairly wide variations in belt lengths on ordinary drives do not produce unsatisfactory operations, bulletin reports, but best performances are obtained from matched sets of belts. Information Bulletin 2170.

THE B. F. GOODRICH COMPANY, Industrial Products Division, Dept. CP, Akron, O.

When inquiring specify CP 4043 — see handy form pages 2-3

**NEW... EXCLUSIVE!**

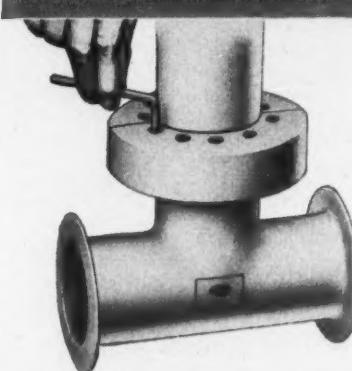
# Nibcoley

## Lock Flange Fittings



*Simplest,  
most economical  
method of installing  
demountable  
alloy piping*

**ONLY TOOL NEEDED IS  
THIS LITTLE WRENCH**



Just a few twists with a set screw wrench and you break a NIBCOLOY Lock Flange joint—for inspection, cleaning, renewing gaskets, or for a change in the line itself. The simple, direct connection is just as easily restored... Fittings are available in Inconel, Nickel and Monel and stainless steel (Types 316-347-304). Lock Flange is manganese bronze, Drive Ring of stainless steel and set screws are rust-proofed carbon steel... NIBCOLOY lock flange fittings can be produced to meet your specific needs. Your detailed inquiry is solicited. Mail coupon for Catalog 902 covering the entire line of NIBCOLOY wrot fittings.

**Northern Indiana Brass Co., 203 Plum St., Elkhart, Indiana.**

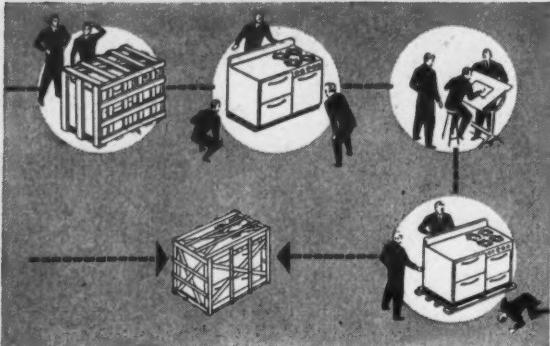
Please send your catalog 902, including complete information about the exclusive new Nibcoley Lock Flange.

**Individual** \_\_\_\_\_

**Company** \_\_\_\_\_

**Address** \_\_\_\_\_

When inquiring specify CP 4044 . . . see information request blank, pgs. 2-3



## Generally Speaking - "THE CONTAINER IS PART OF THE PRODUCT"

Our engineers have had many years of experience in the redesign of shipping containers. Result is that General Boxes and Crates are compact, light in weight, and extra strong. They're actually "A Part of the Product." For more information, send for your copy of "The General Box."

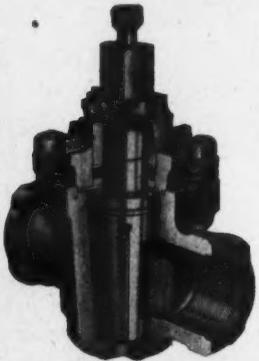
### GENERAL BOX COMPANY

GENERAL OFFICES: 522 N. Dearborn St., Chicago 10, Illinois

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Natchez, Winchendon. Continental Box Company, Inc.: Houston, Dallas.

When inquiring specify CP 4045 — see handy form pages 2-3

## 4-WAY VALVE PROTECTION



- "Sealdport" lubrication in Nordstrom Valves
- 1. Seals the valve
- 2. Prevents sticking
- 3. Protects the seat
- 4. Prolongs valve life

Lubrication is necessary to assure perfect valve performance in chemical services. The design and characteristics of Nordstrom valves make operation positive and guard against corrosion and erosion. Ask for descriptive Bulletin.

# NORDSTROM Lubricated PLUG VALVES

**NORDSTROM VALUE DIVISION** —  
Rockwell Mfg. Co.  
400 North Lexington Ave., Pittsburgh 8, Pa.  
Sales Offices in principal cities.

When inquiring specify CP 4046 — see handy form pages 2-3



## New Literature

### Anionic Wetting Agent, Surface-Active Material, Have Wide Applications

Two technical data sheets describe NSAE powder and Maprofix NEU powder. Former is an anionic wetting agent with wide uses as an assistant in detergent and dispersing operations, particularly in acid solutions. For use in cleaning metal objects prior to plating, finishing; in pickling operations, electroplating solutions; insecticide and fungicide manufacture; conditioner for paper mill felts, etc.

Latter is anionic surface-active material with exceptional foaming properties, excellent wetting, penetrating and dispersing action. For bottle washing, metal cleaning, cleaning automotive equipment; anti-pitting agent in nickel plating; dispersing agent in paint, pigment and rubber production; for insecticides; suspending, dispersing agent in de-inking, reworking paper. Technical Data Sheets 2 and 3, respectively.

ONYX OIL & CHEMICAL COMPANY, Dept. CP, Jersey City 2, N. J.

When inquiring specify CP 4047 — see handy form pages 2-3

\*

### 416-Page Handbook on Contour Sawing Includes Shop Instruction Programs

A 416-page handbook, 6x9", the revised and enlarged 12th edition of "DoAll Contour Saws" includes a new section on instruction programs for use in shop or school training course. Techniques for contour sawing and filing, high-speed sawing, and the friction cutting methods with band sawing equipment, are described with aid of photographs, charts and drawings. Recommended procedures for sawing all types of materials are given, along with comparative performance of other machine tools.

Second part of book embodies a self-training course for apprentices and machinists, with 23 work projects, demonstrations and grading tables. Machining short cuts, new applications and techniques, are covered. Free copies are available. "DoAll Contour Saws."

THE DoALL COMPANY, Dept. CP, 254 N. Laurel Ave., Des Plaines, Ill.

When inquiring specify CP 4048 — see handy form pages 2-3

\*

### Rapid Sand Filter Has Automatic Backwash to Eliminate Change-Overs, Shut-Downs

Rapid sand filters employing a traveling, automatic backwash mechanism to clean filter bed without interrupting filter process are pictured and described in a 12-page bulletin. Units are adapted to purifying industrial water supplies, sewage and municipal water treatment, trade waste recovery, raw water purification, white water filtration and waste recovery in paper mills. Literature includes diagrams, tables, discussion of operation and applications. Bulletin 46.

HARDINGE COMPANY, INC., Dept. CP, York, Pa.

When inquiring specify CP 4049 — see handy form pages 2-3

\*

### Describes Oil Filters For Industrial, Machine Tool Application

Oil filter applications for industrial and machine tools are covered by a 16-page catalog. Illustrated and tabulated. Includes scaled diagrams and specifications. Description page for each filter includes detailed spec-

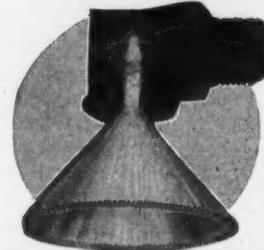
## SPRAY NOZZLE INFORMATION CATALOG NO. 22



### FOR LOWER SPRAYING COSTS

Surprising as it may seem, spray nozzles alone are often a highly important element in the efficiency of a process or operation involving spraying. Spraying Systems can provide Spray Nozzles that offer two important advantages: (1) design based on a specialized experience in spray nozzle engineering and (2) wide range of sizes to obtain characteristics such as capacity and degree of atomization that meet specifications exactly. Write for Catalog No. 22 . . . gives complete information.

SPRAYING SYSTEMS CO.  
4037 W. Lake Street • Chicago 24, Illinois



#### WHIRLJET

Spray Nozzles made of hard rubber for Corrosion Resistance

Spray nozzles available made of hard rubber and related materials for resistance to corrosive liquids of all types. All standard nozzle designs and sizes including pneumatic atomizing nozzles.

### SPECIALISTS IN SPRAY NOZZLE DESIGN AND MANUFACTURE

When inquiring specify CP 4050 — see handy form pages 2-3

## INDUSTRIAL

### Aluminum LADDERS DESIGNED FOR EFFICIENCY AND SAFETY

High quality Aluminum Ladders are gaining greater and greater recognition in modern industry where their light weight and great strength spell efficiency and safety. Constructed from 613T aluminum alloy with a high tensile strength, all aluminum ladders are fire-proof, rust-proof, non-corrosive, non-sparking, easily handled and stored, and perfectly balanced. For years of dependable ladder service, specify Aluminum Ladders when you buy. Write for descriptive literature and prices.

#### SPECIFICATIONS FOR TYPE 400

Model	Height to Platform	Width at Bottom	Weight
400	4'	25"	20 lb.
401	6'	27-1/4"	28 lb.
402	8'	30-1/4"	38 lb.
403	9'	31-1/4"	44 lb.
404	10'	33-1/4"	48 lb.
405	11'	34-1/4"	52 lb.
406	12'	36-1/4"	56 lb.



#### TYPE 400

"Original Manufacturers of Aluminum Ladders"

## Aluminum Ladder Company

292 Carbis Street  
Worthington, Pa.

When inquiring specify CP 4051 — see handy form pages 2-3

### CHEMICAL PROCESSING Preview

## New Literature

ifications chart on construction, dimensions, capacity, weight, etc. Literature includes full-page chart on element characteristics and reproduction of ASTM standard viscosity-temperatures chart for liquid petroleum products.

Of interest is "P" type or micronic element embodying a process for impregnating selected cellulose with a resin which withstands effects of high pressures, varying temperatures, and permits degree of filtration so fine as to be measured in microns. Catalog G-C-47.

PUROLATOR PRODUCTS, Dept. CP, Newark 2, N. J.

When inquiring specify CP 4052 — see handy form pages 2-3

\*

### Rotary Kilns Offer Improved Product Control, Low Costs to Chemical, Cement Plants

Rotary kilns for cement, lime and chemical plants are subject of a 32-page bulletin. Profusely illustrated and diagrammed, literature points out how this equipment offers better product control and lower costs to process industries, tells how design affects economical operation of wet or dry process portland cement plants.

Design and construction of easily-aligned, two-roller carrying mechanisms for supporting long, multi-support rotary kilns are considered. Kiln drives, feeders, centralized kiln control equipment, air-quenching and rotary coolers, dryers and furnaces are similarly described. Includes hp calculations, also auxiliary equipment for cement plants, pyro-processing. Bulletin 07B6368.

ALLIS-CHALMERS MFG. COMPANY, Dept. CP, Milwaukee 1, Wis.

When inquiring specify CP 4053 — see handy form pages 2-3

\*

### Indexes Relief and Safety Valves Along

Designed to facilitate prompt selection of relief or safety valves, a 6-page condensed specifications bulletin contains a detailed index listing all type numbers along with other pertinent data and comparison numbers of other commonly used valves. Sizes, pressures and materials are indicated.

Literature includes a 2-page pictorial display of 31 separate valve sectional line drawings. These illustrate the units indexed. Nozzle valve features are described. Bulletin 50.

FARRIS ENGINEERING CORPORATION, Dept. CP, 460 Commercial Ave., Palisades Park, N. J.

When inquiring specify CP 4054 — see handy form pages 2-3

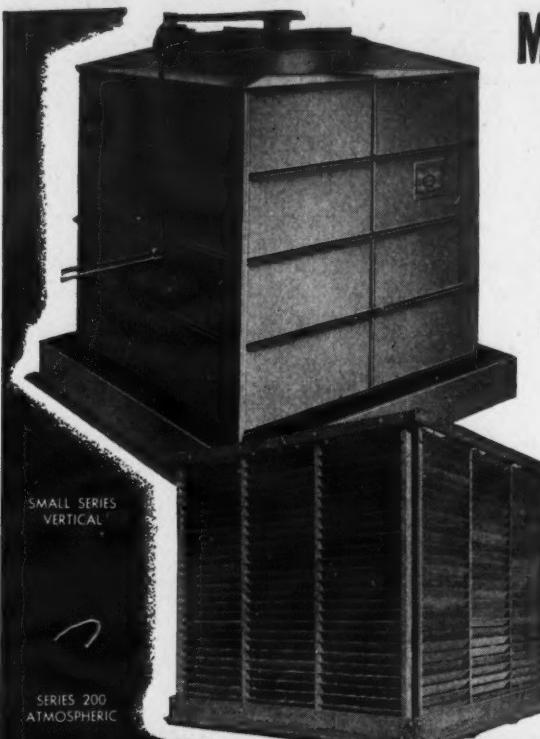
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### Describes "End-Shak" Testing Sieve Shaker, 47 Sizes of Testing Sieves

A 4-page bulletin describes manufacturer's line of ASTM testing sieves, also an "End-Shak" testing sieve shaker. More than 47 sieve sizes are tabulated with specifications. One page shows and describes motorized sieve shaker with 13 half-height US Standard testing sieves. Testing Sieve and Sieve Shaker Bulletin.

NEWARK WIRE CLOTH COMPANY, Dept. CP, 351 Verona Ave., Newark 4, N. J.

When inquiring specify CP 4055 — see handy form pages 2-3

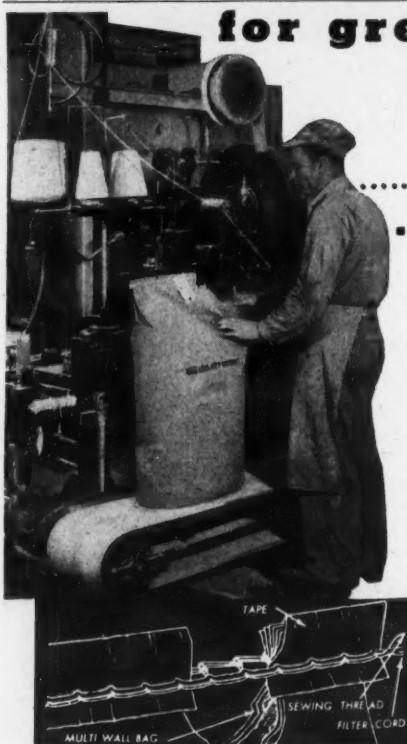


THE MARLEY COMPANY, INC.

KANSAS CITY 15, KANSAS

When inquiring specify CP 4056 . . . see information request blank, pgs. 2-3

for greater security . . .



... the Union Special closure for  
Paper Bags

Here is the equipment for closing large size multiwall paper bags: Union Special's Style 21800 H table type bag closing machine with Style 80600 H sewing head. This unit is specially designed to produce a tight, durable, economical closure at high speed for any plant using multiwall paper bags. As illustrated in the accompanying sketch and picture, the machine applies a paper tape binding, folds it over the top of the bag, automatically inserts a filter cord, and sews through the bag top in a smooth, continuous operation. For easy handling of bags, standard units are equipped with a five-foot, adjustable, power-driven conveyor.

The sewing head is also adjustable for bags of varying heights.

For detailed description, ask for Bulletin No. 200.

Union Special  
Machine Company

442 NORTH FRANKLIN STREET • CHICAGO, ILLINOIS

When inquiring specify CP 4057 . . . see information request blank, pgs. 2-3

## New Literature



### NEW BULLETIN DESCRIBES TOP LUBRICATED PLUG VALVES TO CONTROL CORROSIVES

A request on your letterhead will bring you this new Durco bulletin which gives complete data on Durco top lubricated plug valves made of corrosion-defeating alloys, Duriron and Durichlor. Contains cutaway view of valve, description of how it operates, operating features, complete engineering dimension data and parts list.

Write for your copy of Bulletin 617.

DURCO Adv. 32-GM

THE DURIORON COMPANY, Inc.  
DAYTON 1, OHIO, U.S.A.

When inquiring specify CP 4058 — see handy form pages 2-3



STEAM CONDENSERS—WATER COOLING TOWERS—STEAM JET EJECTORS

When inquiring specify CP 4060 . . . see information request blank, pgs. 2-3

Page 50

### Specifications Portfolio Contains Full Data on Lift Trucks, Industrial Tractors

Fork lift trucks and industrial tractors are the subject of a comprehensive Specifications Portfolio, in compact form for easy filing. Contains illustrations, engineer's drawings, full specifications and operating data on all models of this manufacturer.

Inside covers of the folder show variety of material handling operations. A pocket on one side contains a small, 4-page folder of condensed specifications on various models, also individual specification sheets containing more detailed information. Specification Portfolio.

TOWMOTOR CORPORATION, Dept. CP, 1226 E. 152nd St., Cleveland 10, O.

When inquiring specify CP 4059 — see handy form pages 2-3

\*

### Air Conditioning Book Covers Science And Practical Applications

"Air Conditioning" is a 692-page text and work manual illustrated with tables, charts and diagrams. Part of the book is devoted to a review of chemical and physical laws, while the remainder discusses practical aspects such as equipment, materials and costs. Appendix includes abbreviations, symbols and conversion tables. Problems and their solutions are presented.

There are chapters on spray systems and cooling towers, central air conditioning systems, cooling methods and refrigeration, radiant heating, air and vapor mixtures,

## NEW CATALOG

Theory and Operating Characteristics of Steam Jet Ejectors for all classes of vacuum service. Single, Two, Three, Four and Five Stage Types. Non-condensing and Condensing types with Barometric or Surface Inter- and After-condensers for vacuum requirements in chemical plants, food plants, sugar refineries, oil refineries, power plants, etc. Steam Jet Vacuum Refrigeration for water cooling requirements of air conditioning and process applications. . . . This catalog No. 1462 reflects our over 30 years' pioneering experience. Write for it today on your company letterhead.

C. H. WHEELER MFG. CO.  
1810 SEDGLEY AVE., PHILA. 32, PA.

Representatives in most principal cities

fans and ducts, heat transmission of building materials, etc. Authors, Herbert and Harold Herkimer. Price, \$12. Remit direct to publisher, name below, or inquire on inquiry slip.

CHEMICAL PUBLISHING COMPANY, Inc., Dept. CP, 26 Court St., Brooklyn 2, N. Y.

When inquiring specify CP 4061 — see handy form pages 2-3

\*

### Increased Capacities of Fan-Cooled Worm-Gear Speed Reducers Slash Costs

Six illustrated examples of savings effected with fan-cooled worm gear speed reducers are presented in an 8-page booklet. In each case, the actual installation is shown, with facts and figures briefly set forth.

Design of these units is said to increase their capacity up to double the rating of standard models of equal frame size, when operated at motor speeds. Catalog 300.

THE CLEVELAND WORM & GEAR COMPANY, Dept. CP, 3249 E. 80th St., Cleveland 4, O.

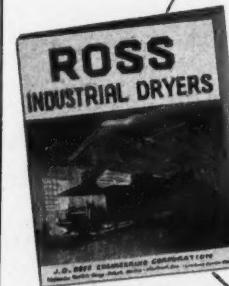
When inquiring specify CP 4062 — see handy form pages 2-3

\*

### Nomograph Eliminates Figuring; Provides Correct Radiation Sighting Locations

Radiamatic sighting angle and location for radiation measurement of extreme processing temperature can be determined with the aid of a nomograph which includes step-by-step directions and a typical problem.

## Take these 2 steps to BETTER PROCESSING



Get this new book that explains how modern drying methods increase output and improve quality of products of major industries.

2 Get reliable recommendations of a Ross engineer for improving your processing with equipment designed to make its operation profitable to you.

Ross Bulletin No. 131 describes most successful drying method used in each of the major manufacturing industries. Write for your copy. Address our nearest office.

Ross Dryers are individually designed for the particular requirements. The Ross nameplate signifies a "custom made" dryer.



**J. O. ROSS**  
ENGINEERING CORPORATION

DESIGNERS AND BUILDERS OF AIR PROCESSING SYSTEMS

350 MADISON AVE., NEW YORK 17, N. Y.  
Boston 8, Mass. • Detroit 3, Mich. • Los Angeles 14, Calif.  
ROSS ENGINEERING OF CANADA, LIMITED • MONTREAL 18, P. Q.  
CARRIER • ROSS ENGINEERING COMPANY, LIMITED, LONDON, ENGLAND

When inquiring specify CP 4063 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## New Literature

with its solution. An aid in defining correct positions such as height and angularity of a sighting element, the nomograph is said to provide accurate indication of areas being measured without resort to mathematical figuring.

Originally designed as a simplified means of correctly positioning a radiomatic radiation detector to sight on the top course of checker-brick in regenerative furnaces, the nomograph, as now offered, gives speedy knowledge of correct sighting angles and locations which are said to favorably affect fuel economy. Form 2080.

THE BROWN INSTRUMENT COMPANY, Dept. CP, Philadelphia 44, Pa.

When inquiring specify CP 4064—see handy form pages 2-3

\*

### Steam Humidifiers Eliminate Processing, Storage Losses Caused by Dry Air

Much useful reference data on humidification requirements for processing and/or storing a wide variety of materials is contained in a 12-page, illustrated bulletin. Entitled "Controlled Humidification," it discusses losses caused by dry air, and elimination of these losses through installation of electrically and air-operated steam humidifiers. Operational diagrams are included.

12 installation photographs, with results obtained in each case, are presented. Selection, installation, supply and return pipe sizes, are described, tabulated. Bulletin No. 177.

ARMSTRONG MACHINE WORKS, Dept. CP, Three Rivers, Mich.

When inquiring specify CP 4065—see handy form pages 2-3

\*

### Rubber Pipe Joints Give True Compression for Pressure, Other Installations

Rubber pipe joints for coupling of pressure pipe installations, sewers, siphons, etc., is graphically described in a 4-page bulletin. Explains and illustrates method of construction which induces true compression throughout pack. Photographs show how gaskets are snapped on pipe tongues, also actual installations. Cross-sectional views are included. "Tylox" Joints bulletin.

HAMILTON KENT MANUFACTURING COMPANY, c/o T. S. Rowe, president, Dept. CP, Kent, O.

When inquiring specify CP 4066—see handy form pages 2-3

\*

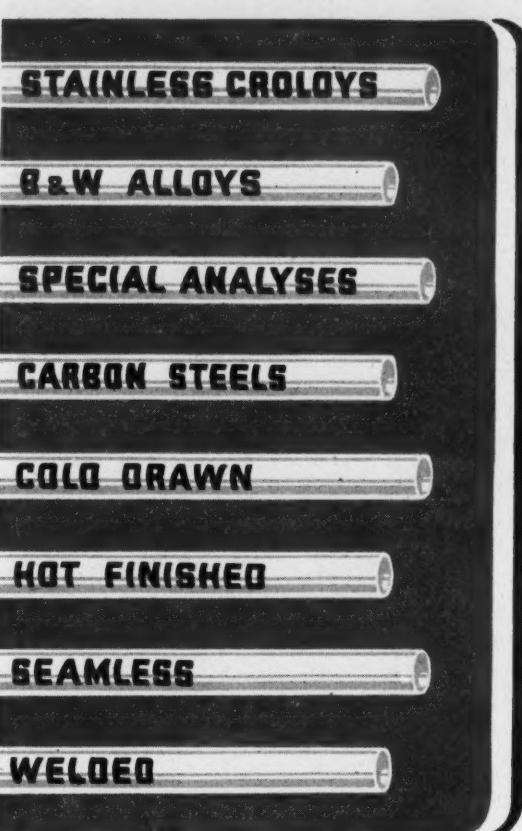
### Naphthenate Paint Drier Booklet Contains 14 Pages of Resin Recommendations

Naphthenate paint driers are the topic of a 48-page, file-tabbed booklet, size 9 x 11 3/4". Of special interest to formulators are 14 pages of tables containing drier recommendations of prominent resin manufacturers.

Literature offers complete information on Soligen driers, including history, manufacture, performance, physical data, recommendations for use, analytical methods, conversion tables and data. Soligen Driers folder.

ADVANCE SOLVENTS & CHEMICAL CORPORATION, Dept. CP, 245 Fifth Ave., New York 16, N. Y.

When inquiring specify CP 4067—see handy form pages 2-3



## Tubes for ALL Process Needs . . . all from ONE SOURCE

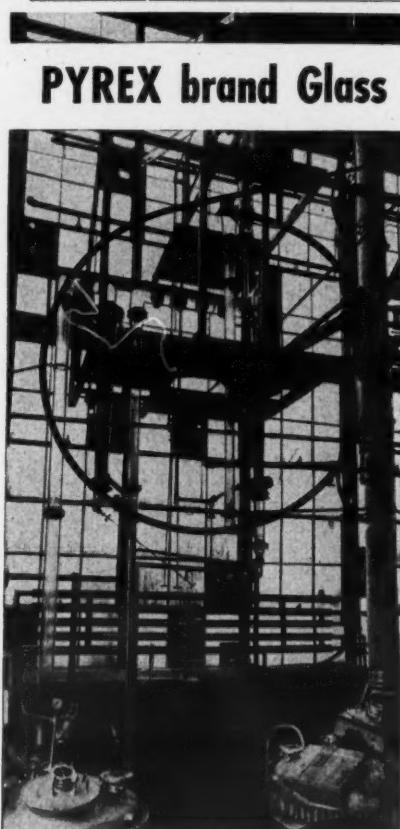
Finding the right tubing—Seamless or Welded—for any process application is a simple problem when your requirements are put up to B&W. The variety of tubing made by B&W embraces the widest range of analyses available from one source. So no matter what kind of steel tubing you need—B&W makes it . . . for any combination of operating conditions from the ordinary to the severest with respect to corrosion, oxidation, creep strength, high or low temperatures . . . for any application in chemical and other processing plants . . . for vital parts of processing equipment.

Authorized distributors in all principal cities can, in many cases, fill your orders promptly from local warehouse stocks. Ask for full information on all or any type of B&W Tubes.

TA 13775



When inquiring specify CP 4068 . . . see information request blank, pgs. 2-3



## PYREX brand Glass Pipe . . . The ONLY satisfactory material

Its economy for extremely corrosive service again emphasized by . . .

### Hilton Davis Chemical Co.

ARE YOU skeptical about using PYREX brand glass pipe in your plant process? Consider the experience of Hilton Davis Chemical Company, Cincinnati, Ohio. After handling the transfer of chlorinated solvents for several years, PYREX pipe is considered "the only practical material." It not only withstands corrosion better but visibility has not been marred by etching. That means that its service life remains unimpaired.

There is no test more severe on any material than chlorination, but whether your problem is chlorination or processing of pharmaceuticals, sensitive drugs, hydrochloric acid or similar products, PYREX brand glass pipe is the practical solution.

PYREX pipe is available in 1, 1 1/4, 2, 3 and 4 inches I.D. in standard lengths up to 10 feet. A complete line of fittings for all sizes is also available and includes elbows, tees, laterals, crosses and U-bends. On the market for nearly 20 years, PYREX pipe is in use in hundreds of chemical and food plants.

For complete details, ask for Bulletin 1A-3.



CORNING GLASS WORKS, CORNING, N.Y.  
SALES OFFICES: NEW YORK, CHICAGO, SAN FRANCISCO

PYREX GLASS PIPE

TECHNICAL PRODUCTS DIVISION GAUGE GLASSES - GLASS PIPE - LIGHTINGWARE - SIGNALWARE  
LABORATORY GLASSWARE - OPTICAL GLASS - GLASS COMPONENTS

When inquiring specify CP 4069 . . . see information request blank, pgs. 2-3



The Solvay soda process was commercially perfected in 1864. Ten years earlier, the first "Roots" Blower was produced. We're not good because we're old, but old because we're good.

# MOVING! MIXING! We give Chemicals a ride MEASURING!



You gain an important, exclusive advantage, when you work with Roots-Connersville engineers on gas or air-handling problems, and in the moving and mixing of solids by pneumatic conveying.

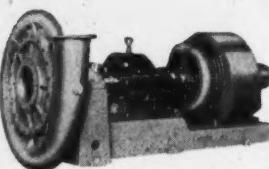
Because we build both Centrifugal or Rotary Positive equipment, we can recommend, without bias, the type best fitted to your needs. Only Roots-Connersville offers you this *dual-ability*.

R-C Centrifugal units incorporate the advanced thinking of skilled, ingenious engineers experienced in the unique needs of the chemical industry.

R-C Rotary Positive Blowers, Meters and Vacuum Pumps are the products of almost a century of blower building. Their simplicity, durability and dependable performance have been long-proved in almost every industry.

You'll find it profitable to move, mix and measure with R-C equipment.

**ROOTS-CONNERSVILLE BLOWER CORPORATION**  
802 Richland Avenue Connorsville, Indiana



From our standard lines of Centrifugal and Rotary Positive Blowers, capacities are available from 5 CFM up.



Rotary Positive Meters measure gases with cash-register accuracy, from 1,000 CFH to 1,000,000 CFH.



**ROOTS-CONNERSVILLE**  
ROTARY ENTRIFUGAL  
BLOWERS • EXHAUSTERS • BOOSTERS • LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

\* \* ONE OF THE DRESSER INDUSTRIES \* \*

When inquiring specify CP 4070 — see handy form pages 2-3

Page 52

## Now Literature

### Use of Tables Eliminates Uncontrolled pH

4-page folder contains comprehensive tabulation of plating baths, listing pH range and optimum pH for each bath. References to original articles are cited, with information for obtaining photocopies of same.

These tables are for use with manufacturer's set of pH papers, which provides a test paper for each plating process. "pH Tables for Electroplaters."

R. P. CARGILLE, Dept. CP, 118 Liberty St., New York 6, N. Y.

When inquiring specify CP 4071  
— see handy form pages 2-3

\*

### Gear and Reducer Catalog Has 100-Page Engineering Section

Practical assistance in solving gear and gear speed reducing problems is offered by a 575-page catalog and handbook. This is a 9 x 11 1/4" volume, clothbound.

Includes extensive engineering data, weights, rating tables, hp capacities and a special 100-page engineering section covering all types of gears and gear reducers. Catalog 1000 now ready for distribution to gear engineers.

D. O. JAMES MANUFACTURING COMPANY, Dept. CP, 1140 W. Monroe St., Chicago, Ill.

When inquiring specify CP 4072  
— see handy form pages 2-3

\*

### Disc Filters Handle Acids, Solvents, Soaps, Water

Disc filters for water, syrups, chemicals, extracts, oils, beverages, brines, acids, solvents, alcohol, medicines and soaps are described in a 12-page leaflet.

Pictures show the unit on pedestal base, two perforated metal discs supporting filter medium above and below, permitting downward or upward flow; also show pumping unit with portable base and a close-up with wall bracket. Filter area 130 sq. in. and larger. "Common Sense Disc Filter" bulletin.

THE FILTER PAPER COMPANY, Equipment Div., Dept. CP, 2426 S. Michigan Ave., Chicago 16, Ill.

When inquiring specify CP 4073  
— see handy form pages 2-3

## NOW! A Special Flexible Coupling that WILL NOT SPARK!

Essential in Chemical, Paint, Varnish Plants, in Petroleum Refineries, etc.

### LOVEJOY L-R TYPE "A"

#### Flexible Couplings

Lovejoy L-R Type "A"  
1/6 to 40 H.P. Pat. and  
Pats. Pend.

#### TOBIN BRONZE BODY

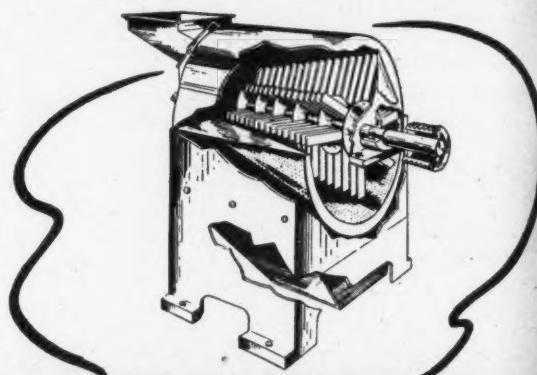
#### INSULATING CUSHIONING SPIDER

#### NO LUBRICATION REQUIRED

#### LOVEJOY FLEXIBLE COUPLING CO.

Also Manufacturers of Variable Speed Transmissions  
5072 W. Lake St., Chicago 44, Ill.

When inquiring specify CP 4074 — see handy form pages 2-3



#### FOR THE PERFECT GRIND

Prater Gradual Reduction Grinders are offered in a wide range of sizes to make efficient material reduction available to all types of industries. Whether your operation is large or small, there is a Prater mill to help you turn out a better product more economically. Why not take advantage of Prater service? It's our way of helping you work out your grinding problems. Tell us your requirements today. There's no obligation. Just write: Prater Pulverizer Company, 1519 South 55th Court, Chicago 50, Illinois.

## PRATER PULVERIZERS

When inquiring specify CP 4075 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## New Literature

### Offers Equipment for Inert-Gas-Shielded Arc Welding Applications

An 8-page, letter-size folder describes and illustrates Heliwelding equipment for inert-gas-shielded arc welding applications. A new manual holder, machine holder and electronically-controlled automatic head are presented. Advantages and uses, construction details, and a page of supplementary equipment and supplies are included. "Heliwelding" booklet.

AIR REDUCTION SALES COMPANY, Dept. CP, Dept. 1632, 60 E. 42nd St., New York 17, N. Y.

When inquiring specify CP 4076 — see handy form pages 2-3

\*

### Tabulates, Describes Methods and Apparatus for Conditioning Water, Liquids

Methods and apparatus for conditioning water and other liquids are described in a 60-page catalog-bulletin, revised to include recent developments. More than 36 diagrams cover principals of construction and operation of various processes and equipment for softening, clarification and demineralization.

Each of many different water conditioning processes are presented, with applications, advantages and limitations. Tables list various kinds of gaseous and solid impurities showing effects, limits of tolerance for various purposes, methods of removal and residual amount of each impurity after treatment. A comparison chart shows chemical results produced by various water treatment methods. Catalog G-1.

LIQUID CONDITIONING CORPORATION, Dept. CP, 114 E. Price St., Linden, N. J.

When inquiring specify CP 4077 — see handy form pages 2-3

\*

### Vol. 3 of "Organic Analytical Reagents" Is 594 Pages, in Three Parts

Volume 3 of "Organic Analytical Reagents" is a 594-page book describing organic compounds used in analyzing inorganic substances and discussing the methods employing these reagents. Literature references are given, with comment. Part 1 concerns heterocyclic nitrogen compounds; Part 2, the oximes, and Part 3, acidic imino compounds.

Author: Frank J. Welcher, Ph. D. Series price, \$7; individual price of Volume 3, \$8. Remit direct to publisher, name below, or inquire on inquiry slip.

D. VAN NOSTRAND COMPANY, INC., Dept. CP, 250 Fourth Ave., New York, N. Y.

When inquiring specify CP 4078 — see handy form pages 2-3

\*

### "Aisle-Saver" Electric Truck Right-Angle Stacks from 8-foot Aisles

A 6-page folder illustrates and describes the "Aisle Saver" Palletier electric truck which right-angle stacks from 8' aisles. Overall length, 92 $\frac{1}{8}$ " with 40" long pallet load. Illustrated with in-use photographs and dimensional diagrams. Specifications include standard tilt of 5° back, 3° forward, capacities of 2000 and 1750 lbs. at 34 and 42" load lengths, respectively. Palletier truck bulletin.

CRESCENT TRUCK COMPANY, Dept. CP, Lebanon, Pa.

When inquiring specify CP 4079 — see handy form pages 2-3

FEBRUARY, 1948

# FROM MIDGET TO MAMMOTH



*Anti-Corrosive  
STAINLESS STEEL  
fastenings*

**LAST LONGER! SAVE MONEY!**

Nuts, bolts, screws of all kinds, washers, rivets, cotter pins, nails . . . ready to ship on order, in all standard sizes and analyses. Special products, to your specifications, made and delivered promptly.

Write for  
FREE CATALOG and Stock List



**Anti-Corrosive Metal Products Co. Inc.**  
CASTLETON-ON-HUDSON NEW YORK

Write for catalog and stocklist. Address Anti-Corrosive Metal Products Co., Inc., 52 River Road, Castleton-on-Hudson, N. Y. In Canada, Railway and Power Engineering Corp., Ltd.

When inquiring specify CP 4080 . . . see information request blank, pgs. 2-3

Page 53

# Accurate PIPE THREADS Extra Fast

**RIDGID No. 65R offers near machine-speed in threading 1" to 2" pipe**

It's unusually fast and easy for two reasons. You save on get-ready—10 seconds sets it to pipe size (1", 1 1/4", 1 1/2", 2"), both chasers and workholder. And it threads any kind of pipe fast with surprisingly little effort—precision-made high-speed toolsteel dies that stay in the efficiency-balanced die stock. Factory tested—see test sample in each tool. It pays you to buy No. 65R—at your Supply House.

Sulphur-Lard RIDGID (Ridge Oil) for better threads.



**RIDGID**  
WORK-SAVER PIPE TOOLS

THE RIDGE TOOL COMPANY • ELYRIA, OHIO

When inquiring specify CP 4081—see handy form pages 2-3

Page 54

## Processing Equipment

### Fractional hp Transmission Has 0 to 1750 rpm Stepless Output

*Output shaft speed can be varied either direction without changing input shaft rotation*

**USES** — Variable speed hydraulic transmission for fractional horsepower machinery drives.

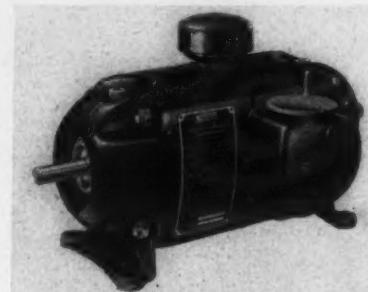
**FEATURES** — Fingertip speed adjustment. Unit may be stalled without damage. Many mounting positions.

**DESCRIPTION** — Rated at  $\frac{1}{2}$  hp, continuous duty. Handwheel or servo control. Designed for smooth, stepless speed adjustment from zero to maximum output of 1750 rpm, in either direction of rotation, and to maintain full, constant torque output of 40 pound-inches throughout speed range.

Input shaft may be driven in either direction without mechanical change. Unit has automatic overload protection. Bulletin 47-40.

VICKERS Inc., Div. of The Sperry Corporation, Dept. CP, 1582 Oakman Blvd., Detroit, Mich.

When inquiring specify CP 4082—see handy form pages 2-3



Variable speed hydraulic transmission

eral use of stainless steel and by smooth interior surfaces which afford no harboring place for residues that might pollute. Cleaning between batches requires only one or two minutes.

**DESCRIPTION** — Furnished in two models, one for bench use and a floor model. Former is for mounting on a laboratory bench. The latter, with legs and ball bearing casters, can be moved about for handy use in any part of the laboratory or plant. Both have extension cord for plugging into a 110 volt line.

Clean-out door in mill housing enables operator to brush residues from under screen into glass discharge jar. Grinding chamber is completely exposed by swinging back the hinged cover. One-piece rotor, screen and feed screw can be removed, cleaned and replaced easily.

Manually operated inclined feed screw assures feeding of complete sample into the grinding chamber. Loss of material is negligible even in samples as small as 10 grams. Although feed rates vary with the nature of material and fineness of grind, it will approximate 1 lb. per minute, in any case, at sufficient speed to prevent changes in moisture content.

Mill body, hinged cover, feed screw, clean-out door and feed hopper are of bronze. Interior parts such as mill housing liner, screens and stamped one-piece rotor, are all of stainless steel. Complete standardization in design of the unit provides for all stock parts of the unit being interchangeable.

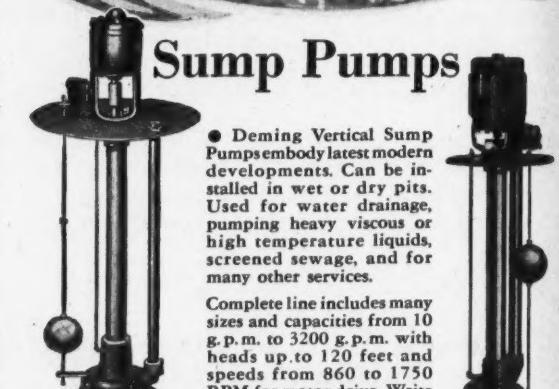
$\frac{3}{4}$  HP main drive motor and bearings are identical to those used in the company's Bantam Mikro-Pulverizer. Hinged



### Sump Pumps

• Deming Vertical Sump Pumps embody latest modern developments. Can be installed in wet or dry pits. Used for water drainage, pumping heavy viscous or high temperature liquids, screened sewage, and for many other services.

Complete line includes many sizes and capacities from 10 g.p.m. to 3200 g.p.m. with heads up to 120 feet and speeds from 860 to 1750 RPM for motor drive. Write for Bulletin No. 4605.



**THE DEMING COMPANY**

522 BROADWAY • SALEM, OHIO

**DEMING**  
THE COMPLETE LINE

PUMPS AND WATER SYSTEMS

When inquiring specify CP 4083—see handy form pages 2-3

CHEMICAL PROCESSING Preview

motor base on the Mikro-Samplmill assures constant and sufficient tension on the belt. Main mill bearing is mounted in labyrinthined pillow block to prevent entry of dust and escape of oil.

Speed of the unit is 3,000 rpm. Extra pulley is included for 12,000 rpm. This higher speed is recommended where finest screen does not produce sufficient fineness of product, as in the case of tough or resistant material. Furnished with screens having .039", 1/16", and 1/8" round perforations. Coarser or finer size screens are available from stock. Hopper is made of bronze, but can be furnished in stainless steel, if desired.

PULVERIZING MACHINERY COMPANY, Dept. CP, 155 Chatham Road, Summit, N. J.

When inquiring specify CP 4084—see handy form pages 2-3



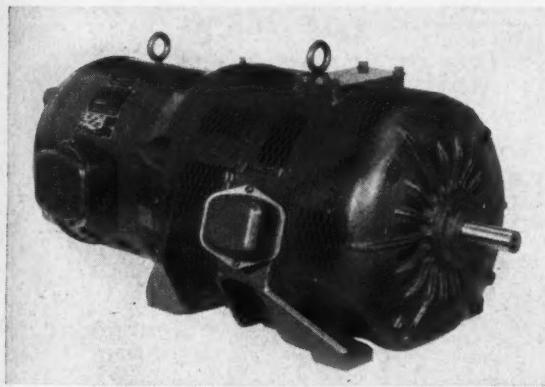
## Operate Adjustable Speed Drive Direct from 2 or 3-Phase Line

Uses new eddy current principle to drive calenders, conveyors, metal slitters, etc.

USES — Adjustable speed drive for operation directly from 2 or 3-phase AC line. Especially suited for driving calenders, paper and metal slitters, conveyors and other variable speed machines requiring constant torque input throughout operating speed range.

FEATURES — Infinitely adjustable speed. Smooth, constant acceleration. Constant ventilation at all speeds.

DESCRIPTION — Up to, and including, 75 hp, the unit combines a squirrel cage induction motor and an eddy current clutch to form a single driving unit. Larger units incorporate separately mounted and



Variable speed AC drive

coupled motor and clutch. Continuous-duty speed ranges as high as 10 to 1 are possible in smaller sizes; intermittent-duty speed range is infinite in all sizes.

Optional features include braking, inching, jogging, threading (at low predetermined speed), or 2 adjustable preset speeds are available. Also optional torque control automatically limiting motor current and clutch torque to predetermined maximum.

"Adjusto-Speed" offers variable speed output with constant torque characteristic through new eddy current principle without usual motor generator set or exciter. Bulletin 611-C.

THE LOUIS ALLIS COMPANY, Dept. CP, 427 E. Stewart St., Milwaukee 7, Wis.

When inquiring specify CP 4085—see handy form pages 2-3

FEBRUARY, 1948



# Now Available A CONTINUOUS MIXER The FLOW-MASTER Roto-Feed For The Chemical Industries

- Stainless
- Sanitary
- Easy to clean
- Continuously and thoroughly mixes products
- Ideal for mixing many chemical products

For Further Information, Write:

**MARCO COMPANY, Inc., 11 N. Third Street, Wilmington 50, Del.**

When inquiring specify CP 4086 . . . see information request blank, pgs. 2-3

MARCO COMPANY, INC.  
11 N. Third Street, Wilmington 50, Delaware

Gentlemen:  
We are interested in learning more about the  
new FLOW-MASTER Roto-Feed Continuous Mixer.

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_



## FOR IMMEDIATE DELIVERY

**2 — 175 gal. and 2 — 135 gal.**  
All Stainless Steel, Jacketed,  
**MIXING-KETTLES**

First come — first served!

These kettles were designed and constructed for a company which, because of an unforeseen development, could not use them. They are at our shop ready to ship. Agitator motors will be selected to match buyer's electrical facilities.

Complete details will be sent on request but all have been inspected and approved by the Board of Health, N. Y. C. Inside as well as outside has been polished. All fittings are the "Tri-Clover" Sanitary type.

Wire or phone for further information.  
The price is attractive!



**THE PATTERSON-KELLEY**  
Company

120 Warren Street    East Stroudsburg, Pa.  
101 Park Avenue, New York 17, N. Y.

Representatives in Principal Cities

When inquiring specify CP 4087 — see handy form pages 2-3

Page 56

## Processing Equipment

### Corrosion-Proofing Tank Lining Compound Useful Against Chemicals, Solutions

An 8-page booklet entitled "Tank Lining Compound for Corrosion Proofing" reveals application specifications for tank lining jobs, including preparation of metal surfaces, application of primer, tie cement, lining cement, putty, and curing of completed lining.

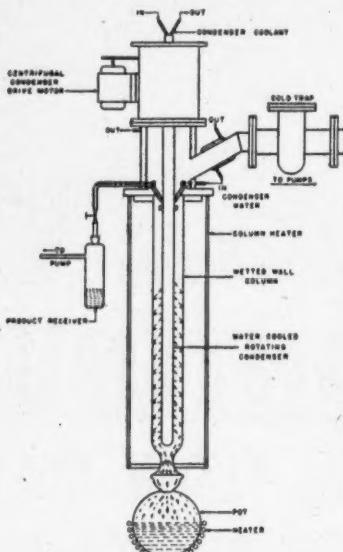
Also presents details of repairing natural and synthetic rubber linings. Chemical resistances are tabulated, showing this lining compound to be useful against various organic chemicals; animal, vegetable and mineral oils; solutions of inorganic acids, inorganic salts, etc.

UNION BAY STATE CHEMICAL COMPANY, Dept. CP, 50 Harvard St., Cambridge 42, Mass.

When inquiring specify CP 4088 — see handy form pages 2-3

### High Vacuum Still Has High Fractionating Capacity

*Centrally cooled rotating cylinder, used as a cooled condensing surface, permits low pressure operation*



Principle of operation of high vacuum rotary fractionating still

accomplished by simultaneous differential condensation and re-evaporation. In effect, a great many successive single redistillations are performed in the single compact column. Column has the obvious requisite of high vacuum operation-low pressure drop. In a typical distillation, a pressure drop of 200 microns was observed from pot to take-off.

**DESCRIPTION** — Principle is illustrated in the accompanying drawing. A portion of the vapor rising from the pot condenses on the rapidly rotating condenser. Droplets of condensate hurled off the rotating condenser are partially revaporized on the heated column. Liquid film flows down the evaporator wall and the vapor stream moves up the annular space. Thus, the vapor stream is continuously enriched by the removal of higher boiling materials by the condenser,

**USES** — Use of this equipment allows re-examination of animal and vegetable fats and oils, fatty acids and waxes in the search for new and valuable by-products. Also may lead to products of higher purity or potency by the high vacuum fractionating of materials of high molecular weight, plasticizers, essential oils, drugs and fine chemicals. It should also be possible to secure much closer fractions of petroleum products than could heretofore be obtained.

### FEATURES

Fractionation is accomplished by simultaneous differential condensation and re-evaporation. In effect, a great many successive single redistillations are performed in the single compact column. Column has the obvious requisite of high vacuum operation-low pressure drop. In a typical distillation, a pressure drop of 200 microns was observed from pot to take-off.

Principle is illustrated in the accompanying drawing. A portion of the vapor rising from the pot condenses on the rapidly rotating condenser. Droplets of condensate hurled off the rotating condenser are partially revaporized on the heated column. Liquid film flows down the evaporator wall and the vapor stream moves up the annular space. Thus, the vapor stream is continuously enriched by the removal of higher boiling materials by the condenser,

# Saran

**PLASTIC PIPE AND TUBING**  
"By Commercial"

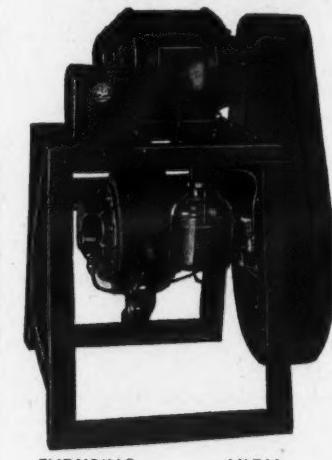
for thousands of industrial applications where a tough, strong and durable piping system is desired. Saran pipe is light in weight, attractive in appearance, and resistant to most acids and chemicals. Consult our Engineering Department on your application, or write for our new Catalog P-47 just off the press.

**COMMERCIAL PLASTICS CO.**  
201 NO. WELLS ST. CHICAGO 6, ILL.

When inquiring specify CP 4089 — see handy form pages 2-3

### ROTARY LAMMERT QUIET VACUUM PUMPS

VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



Investigate!  
**MODEL SWMF.**

**NEW!**  
Continuous  
Self  
Purging  
Principle

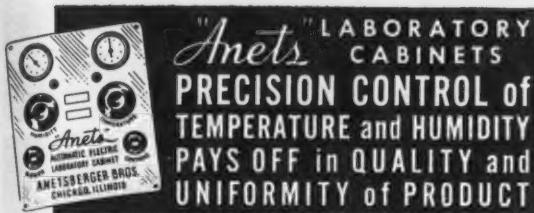
Expels the  
Contaminating  
Influence!  
PERFORMANCE

**LAMMERT & MANN CO.**  
215-21 N. WOOD ST. CHICAGO 12, ILL.

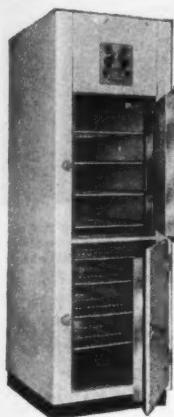
A HALF CENTURY OF SERVICE  
TO SCIENCE AND INDUSTRY

When inquiring specify CP 4090 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



If the pressure is on in your laboratory trying to control quality and uniformity — then install an "Anets" Automatic Electric Laboratory Cabinet. Just a turn of the dials to produce any weather or testing condition from room to 140° F. temperature — and up to 93% relative humidity. Fully Automatic and all-electric operated. Super-sensitive controllers maintain any selected condition with remarkable accuracy. Specified and used by leaders in every industry — electrical, electronic, chemical, plastic, food, medical, etc.



#### STAINLESS STEEL CABINET

New improved LSC-16 has inner cabinet, ducts, air conditioner, heating unit, steam generator, water feeder, shelf hangers, door liners, etc. of Stainless Steel. Heavy molded rubber gasket around doors provides a perfect seal. Controlled conditioned air circulated to every shelf from top to bottom of the cabinet. Check your requirements and write for Bulletin No. 170 TODAY.

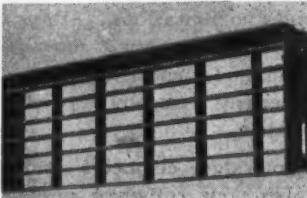
- ★ Testing Electrical and Electronic units and component assemblies.
- ★ Checking moisture absorption, package testing, weathering and break-down.
- ★ Processing plastics, fabrics, metals and wood.
- ★ Incubation, germination, bacterial culture development, fermentation and proofing.

**ANETSBERGER BROTHERS, Inc.**

168 N. ANETS DRIVE, TECHNY, ILL.

When inquiring specify CP 4091 — see handy form pages 2-3

#### Nosing Bar has Dual Advantages



#### on MITCO SHUR-SITE TREADS

Here's a patented, double-value feature of Hendrick Mitco Shur-Site Treads. The heavy, flanged nosing bar makes each step distinctly visible for accident prevention, and it also provides additional strength at the point of heaviest loading. Shur-Site treads have all the other Mitco constructional advantages, including non-slipping, non-clogging surfaces.

Write for full information on Mitco Shur-Site Treads, Mitco Open Steel Flooring and Mitco Armorgrids.



**HENDRICK**  
*Manufacturing Company*  
32 DUNDAFF STREET, CARBONDALE, PA.  
Sales Offices in Principal Cities

When inquiring specify CP 4092 — see handy form pages 2-3

FEBRUARY, 1948

#### Processing Equipment

and the addition of lower boiling materials by the evaporator.

Amount of fractionation, analogous to the number of theoretical plates, depends on the ratio of the mols of vapor formed in the column to the mols formed in the pot. Since the principle of operation of this still differs from that of the conventional adiabatic counter-current contactor, the usual equations for calculating theoretical plates do not apply. However, it is convenient to apply these equations to the separations obtained at total reflux in order to have a basis for comparison of performances. Separation of a mixture of tri-meta-cresyl phosphate and tri-para-cresyl phosphate is one on which data are available. Data from a typical distillation are listed below:

Pot Composition:	10 mol per cent Meta 90 mol per cent Para
Distillate Composition:	95 per cent Mets isomer Distillate composition determined by freezing point method.
Relative Volatility:	1.33
Residual Air Pressure:	1 micron (above the take-off)
Separation:	18 Theoretical plates

NATIONAL RESEARCH CORPORATION, Dept. CP, 70 Memorial Drive, Cambridge 42, Mass.

When inquiring specify CP 4093 — see handy form pages 2-3

\*

#### Inconel Flexible Tubing Handles Services too Extreme for Monel

Has 0.005 to 0.015" wall thickness, flat ribbon or round wire braid; handles up to 1700°



Inconel flexible tubing

resist failure caused by excessive vibration.

**DESCRIPTION** — Made with inconel inner core and braid for temperatures up to 1700°, and with innercore wall thicknesses of 0.005 to 0.015", also with flat ribbon or round wire braid. Thicker wall tubing is for larger sizes where high pressure is primary requisite; thinner wall is for pressures of not more than few hundred psi, and where weight is critical. Flat braid is for higher pressures and resistance to fatigue, especially to sizes 1" or more.

TITEFLEX, INC., Dept. CP, 698 Frelinghuysen Ave., Newark, N. J.

When inquiring specify CP 4094 — see handy form pages 2-3

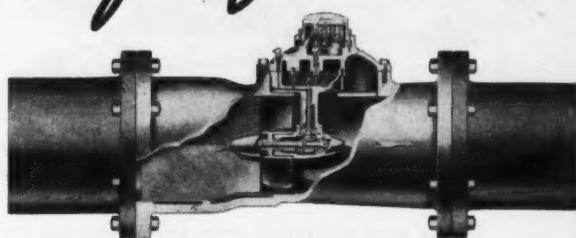
#### DON'T ROB YOURSELF!

##### INSTALL



##### BUILDERS

#### Propeloflo METER



**GUESSING** can be a costly way of determining flow—especially in those communities where sewer taxes are collected. The only fair and safe way to determine your water consumption for tax purposes is by metering all lines. Builders Propeloflo Meter, widely used for main line metering, has been approved by many municipalities for metering all auxiliary lines, including deep well water supplies.

With Builders Propeloflo Meter you know at all times the water consumed or clear effluent discharged. The meter is self-driven and reads directly in gallons. Builders streamline Venturi design totalizes flow accurately over a wide range—with a very low pressure loss which reduces pumping costs. Installation is as simple as bolting in a similar length of pipe —Builders Propeloflo fits all lines 2" to 36". For Bulletin 350A, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Codding Street, Providence 1, R. I.

##### BUILDERS PRODUCTS

Venturi, Propeloflo and Orifice Meters • Type M, Flo-Watch and Flo-Gage Instruments • Shuntflo Steam Meters • Kennison Nozzles • Chronoflo Telemeters • Conveyoflo Meters

**BUILDERS PROVIDENCE**  
*Instruments*

When inquiring specify CP 4095 — see handy form pages 2-3



## Acid-Causticbond

If you need protection from chemicals, you should specify ACID-CAUSTICBOND for a coating which will give more resistance to more acids and alkalis than any other similar coating.

Here is the report of its successful resistance to the following reagents in submerged areas for a period of two months or over:

Acetic Acid 90%	Hydrogen Peroxide 90%	Potassium Hydroxide-conc.
Aluminum Amm. Sulfate-Conc.	Hydrochloric Acid-conc.	Phosphoric Acid-conc.
Chromic Acid 50%	Salt Solutions	Sulfuric Acid 90%
Caustic Soda-conc.	Lactic Acid-conc.	Sodium Hypochlorite-conc.
Formaldehyde-conc.	Muriatic Acid-conc.	Tri-Sodium Phosphate-conc.
Formic Acid-conc.	Nitric Acid 90%	Oleic Acid-conc.

And remember, ACID-CAUSTICBOND is a single product — *primer, body and sealing coat* combined — providing a PROTECTIVE COATING of high bonding quality with extreme resistance to abrasion.

For that extra margin of safety and performance — use ACID-CAUSTICBOND.

### Aluminum ACID-CAUSTICBOND

And NOW there's Aluminum ACID-CAUSTICBOND for those numerous surfaces where aluminum color is essential. When that's your problem YOU can't do better than to use Aluminum ACID-CAUSTICBOND — a metallic aluminum coating of high lustre and enduring sheen with all the ACID-CAUSTICBOND advantages.

Dept. C-42 Greenleaf & Leon Streets  
Boston 15, Mass.



When inquiring specify CP 4096 — see handy form pages 2-3

Page 58

## Processing Equipment

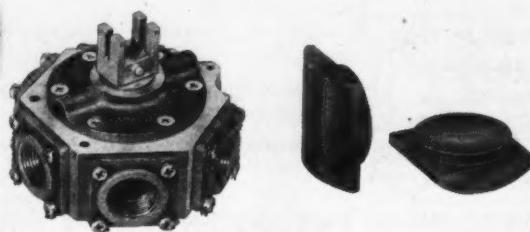
### Special Valves Take Air, Gases, Hot Liquids to 400° F., 500 psi

Corrosive-resistant selector and shut-off types are operated by hand or electric motor

USES — Non-lubricated selector and shut-off valves adapted especially to process services. For handling air, gases or hot liquids up to 400° F. and at non-shock pressures as high as 500 psi. For fluids of varying degrees of corrosiveness.

FEATURES — Furnished for electric motor or hand operation, and in a variety of metals. Uniform low turning torque throughout pressure range.

DESCRIPTION — Designed with non-lubricated rotors of inert graphite. Shut-off valves are 1/2 to 2" pipe size, constructed around cylindrical graphite rotor with a cen-



Selector valve, showing graphite rotor inserts with bonded rubber sacs

tral passage at right angles to cylindrical axis. Permits straight-through flow when passage is lined up with valve body ports. Indexed 90°, blank surfaces of cylinder wall face ports.

Two-part rotor contains 4 springs which exert separating pressure at right angles to passageway, providing initial contact of rotor parts against valve body. Rotor is then pressure-balanced, making shut-off valves suitable for pressures to 500 psi.

Selector valves are 1/2 to 1-1/4", in a variety of rotor arrangements, and permit inter-connection of various combinations of as many as 5 separate lines. "All-off" position is also provided.

Line pressure is used to help seal off line when it is closed, this being accomplished by special graphite inserts fitted into metallic rotor body at points corresponding to ports which must be sealed. These inserts are ground to radius corresponding to rotor cavity in valve body, and are free to move radially. Synthetic rubber sacs containing a light spring are bonded to inner side of inserts. As inserts face ports, spring provides initial contact of insert face with valve body around port.

Hole drilled through graphite to inner sac area admits line fluid to flexible sac. Differential area of port hole and inner graphite surface gives additional sealing pressure. This design is suited to all non-shock pressures up to 50 psi. For higher pressures, and where rubber sac might be limiting factor in corrosiveness or temperature, a variant of the selector valve, using spring loading only, is available.

When motor-equipped, a manual over-ride can be supplied consisting of intermediate adapter permitting motor to be used as hand lever to operate valve when desired, or in

## Moving your products —in process



This Cambridge belt allows continuous treatment of rubber products. Whatever products or raw materials you must move, there is a Cambridge belt to combine that movement with processing.

## Cambridge WOVEN WIRE BELTING

You'll find Cambridge Woven Wire Conveyor Belts wherever products move . . . in production or in process. Cambridge Conveyor Belts know no limitations . . . they are built to permit movement and treatment simultaneously with any type of product.

Cambridge engineers will solve your conveyor problem . . . see Cambridge FIRST.

There's a Cambridge Sales-Engineering office near you.

This valuable reference book is FREE. Shows many varied applications of Cambridge conveyors . . . gives specifications, designs, construction details. Write for your free copy today.



## Cambridge WIRE CLOTH CO.

Dept. E • Cambridge 2, Maryland  
BOSTON • NEW YORK • BALTIMORE  
PITTSBURGH • DETROIT • CHICAGO  
SAN FRANCISCO • ST. LOUIS

When inquiring specify CP 4097  
— see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Processing Equipment

event of power failure. Both shut-off and selector series are furnished in aluminum, bronze, stainless or special alloy steels in all sizes. Packings and gaskets can be furnished for practically any kind of service.

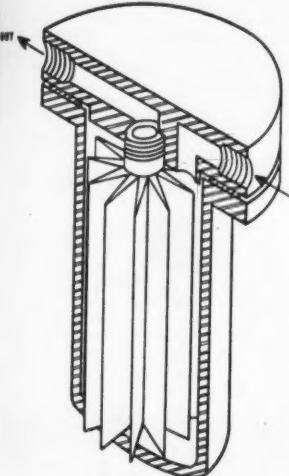
THE PARKER APPLIANCE COMPANY, Dept. CP, 17325 Euclid Ave., Cleveland, O.

When inquiring specify CP 4098 — see handy form pages 2-3

\*

### Filter Has Porous Stainless Steel Element

Available in pipe sizes from  $\frac{1}{4}$ " to  $1\frac{1}{2}$ ". Pore openings range from 20 to 65 microns



Filter equipped with star type porous stainless steel filter element

**USES** — Filter is adaptable for a wide variety of filtration applications.

**FEATURES** — Stainless steel elements of various types are interchangeable. Removal of a filter can be accomplished within a matter of seconds. Fluid passageways are all readily accessible for cleaning. All connections are standard pipe threads. Quick disassembly and assembly is accomplished by using rapid-acting forged steel swing clamps for closure.

**DESCRIPTION** — Porous stainless steel filter elements are provided in a variety of shapes and sizes. Three principal types are cylindrical, bayonet, and star type.

Cylindrical elements are not generally recommended where large pressure differentials are encountered, although these can be reinforced to withstand up to 1000 lbs. or more differential pressure.

Bayonet-shaped elements can be more inexpensively reinforced for any high pressure work, and are regularly supplied with a 100 lb. differential rating; these bayonet type elements also have less hold-up and provide more space for solids collection than the cylindrical type.

Star-type filters are provided for the two larger sizes, and their corrugated surface provides a maximum of filter area, and these units are therefore ideal for large clarification or polishing installations. Where a large volume of solids is to be collected, modified star-type elements are provided.

All working parts are forged or rolled stainless steel. Filter bodies are normally supplied for 200 lb. service, but units rated for higher pressure are available.

Units are available with filter areas ranging from 18 square inches to 24 square feet in pipe sizes from  $\frac{1}{4}$ " to  $1\frac{1}{2}$ ". Pore openings of the porous stainless filter elements range from 20 to 65 microns.

MICRO METALLIC CORPORATION, Dept. CP, 193 Bradford St., Brooklyn 7, New York.

When inquiring specify CP 4099 — see handy form pages 2-3

**Immediate Delivery  
in  
Stainless or Mild Steel**

**8 SIZES  
From 100 to 5000 lbs.**



**SPIRAL LIFTS OUT  
For Easy Cleaning**

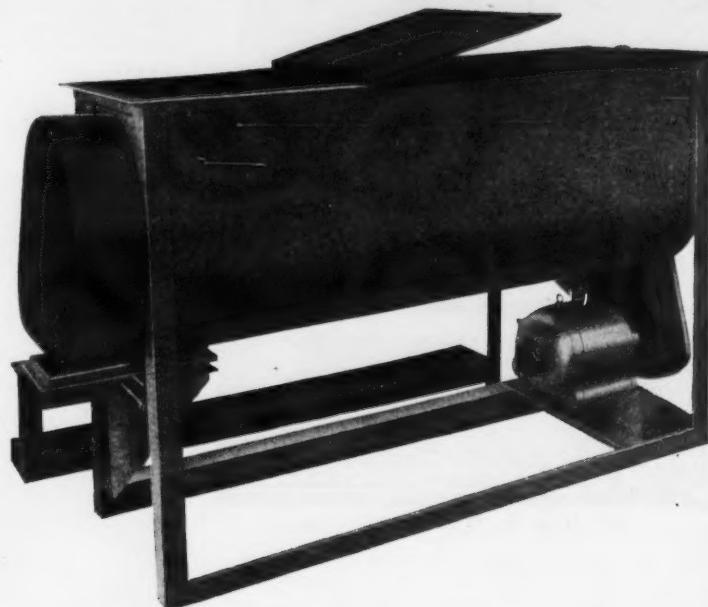
Saves hours in cleaning time makes for more efficient operation.



**Leak-Proof  
Packing Gland  
For Smooth Operation**

DO-ALL Mixer and Blender has the leak-proof packing gland for wasteless operation.

**\$\$ Save on Your Mixing Job \$\$**  
**DO-ALL**



### Fast-Efficient-Adaptable

Here's the result of years of experience and engineering know-how. Only the DO-ALL has all welded, stainless or mild steel construction throughout. Outboard ball bearings,

minimum horsepower required. Solve your mixing and blending problems, no matter what they are, with a DO-ALL Mixer and Blender.

### All Purpose Mixers For Wet or Dry Products

Powders  
Chemicals  
Bakery Mixes  
Paint  
Flour Blending  
Poultry Feeds  
Stock Feeds  
Soaps  
Processing Seeds  
Drugs  
Cosmetics  
Glue

Oil & Greases  
Colors  
Marshmallows  
Plastics (dry)  
Floor-Sweep  
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D. B. LEWIS CO.  
817 East 18th Street, Los Angeles 21, Calif.  
SEND INFORMATION ON:  
DO-ALL MIXERS AND BLENDERS TO ME

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**GET THE FACTS!**  
Dealers: Territories open in some locations in Chemical & Baking fields.

**Send** For Free Booklet  
No Obligation

When inquiring specify CP 4100 . . . see information request blank, pgs. 2-3

## Processing Equipment

**Here is the pair  
for clean, dry  
air . . .**

**JOHNSON  
AFTERCooler**  
Used where moisture is vaporized by the heat of compression. Circulates cooling water around the line, condenses the oil and water vapor so Separator can remove them. Simple in design, highly efficient in performance.

SIZES  
FOR ALL  
NEEDS

WRITE FOR  
BULLETIN

**JOHNSON  
SEPARATOR**  
Removes more water, dirt and oil from compressed air or steam. Combines the two best principles of separation—first allows air to expand slightly, then changes flow direction with the "Thousand Baffles". Model illustrated is the newest idea in separator design, with self-draining trap mechanism built right in.

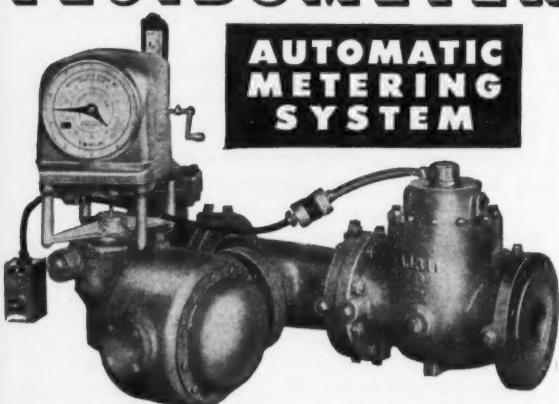


**The Johnson Corporation**

826 Wood St., Three Rivers, Michigan

When inquiring specify CP 4101 — see handy form pages 2-3

## FLUIDOMETER



**AUTOMATIC  
METERING  
SYSTEM**

**ACCURATELY BATCHES LIQUIDS  
OF HIGH OR LOW VISCOSITY**

The Fluidometer System consists of: 1. A control unit. 2. A meter of suitable size, type and metal. 3. A solenoid valve. All three of these parts can be assembled in one closely related grouping, or placed remotely, according to plant convenience. Fluidometer's accuracy and dependability in batching liquids of either high or low viscosity has been proved by years of service under widely varying conditions. Bulletin F-46 sent on request.

**HETHERINGTON & BERNER INCORPORATED**  
**711 Kentucky Avenue, Indianapolis 7, Indiana**

*Builders of Portable and Stationary Asphalt Plants of all Types and Capacities*

When inquiring specify CP 4102 — see handy form pages 2-3

Page 60

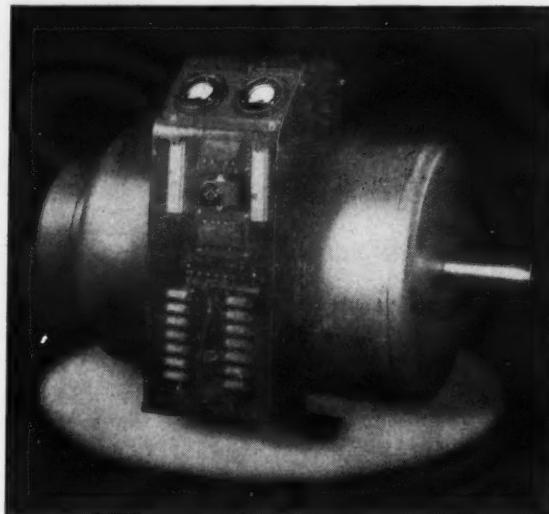
## Generator Has Built-in Automatic Voltage Regulating Circuit

*Unit for engine-generator sets uses electrical resonance principle to hold constant voltage*

**USES** — "Packaged" generator for use in engine-generator sets.

**FEATURES** — Compact and factory-assembled. Only external connections required are leads to a generator switch.

**DESCRIPTION** — Constant voltage is held through principle of electrical resonance, long used for needle-sharp tuning of radios. Built-in automatic regulating



"Packaged" generator

circuit has no moving parts, requires no maintenance. It is permanently connected, factory-adjusted to hold terminal voltage within 2% of voltage selected, at any load or power factor within generator rating.

60-cycle ratings at standard voltages and 0.8 power factor are as follows:

18.7 kva)	25 kva)		
25 kva)	31.3 kva)	1200 rpm	1800 rpm
31.3 kva)	37.5 kva)		

Unit includes revolving-field generator, direct-connected exciter, automatic voltage regulating circuit, meters and selector switch for pre-setting voltage. Publication 186 details operation of circuit.

ELECTRIC MACHINERY MFG. COMPANY, Dept. CP, Minneapolis 13, Minn.

When inquiring specify CP 4103 — see handy form pages 2-3

\*

## 4 oz. Plastics Injector Has 2250 psi Working Pressure

*Powerful, fast-acting all-hydraulic design takes molds up to 15-1/2 x 21" and 12 x 24-1/2"*

**USES** — Improved all-hydraulic 4 oz. plastics injection machine.

**FEATURES** — Powerful and fast-acting. Quiet opera-

## Eberbach **POWER-STIR**



**HIGH TORQUE  
VARIABLE SPEED**

Through 17 to 1 gear reduction the Power Stir develops unusually high torque. The 1/20 H.P. universal motor is rheostatically controlled; without load the speed range is 500 to 2400 r.p.m. Handy mounting rod is 9" by 1/2". Attractively finished in nickel plate and instrument black wrinkle; a plastic knob controls rheostat and off-on switch. Height, 10 1/2"; weight, 4 lbs. Operates on 115 volts, AC or DC. Catalog No. 77-836A \$24.50

**STAINLESS STEEL STIRRERS** with 1/4" shaft and 2 1/2" propellers are catalog number 77-837A.

	12"	18"	24"
Price, each	\$2.25	2.50	2.75

**Consult Your Lab Supply Dealer**



When inquiring specify CP 4104 — see handy form pages 2-3

## Now you can STANDARDIZE

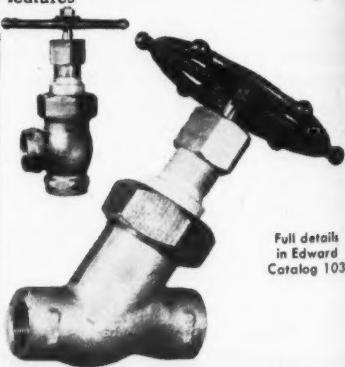
WITH THIS NEW EDWARD

## STEEL STOP VALVE!

For the majority of services where forged steel stop valves are required you can standardize on these Edward designs. Lower pressure loss, oversize handwheels for easy operation, borized seats and disks in mated pairs for drop tight closure, and EVAlized bonnets are but a few of the features of these valves.

### A WIDE SELECTION

- ... Types  
O. S. & Y. or Inside Screw Globe or Angle
- ... Seats and Disks  
EVAlloy Stainless steel or Stellite hard faced
- ... Ease of Installation  
Screwedor Socket Welding Ends
- ... Low Pressure Loss  
Edward streamlined flow
- ... Full Range of Sizes  
1/4 in. to 2 in. both Globe and Angle
- ... ASA Working Pressure Ratings  
600 lb sp at 850 F Series  
1500 lb sp at 850 F Series  
Hydraulic Service up to 3600 lb at 100 F



Full details  
in Edward  
Catalog 103

**Edward Valves, Inc.**

SUBSIDIARY OF ROCKWELL MANUFACTURING COMPANY  
EAST CHICAGO, INDIANA

When inquiring specify CP 4105 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



★ INSTANTANEOUS INVENTORY READINGS!

Now, a complete gaging system which eliminates many gaging operations. Eye-level readings at each tank, plus electric dials on master control panel always before your operator's eyes — ready to give readings instantly. Easy to install. High or low pressure. Accurate. Time Saving. Send for Bulletin No. 148.



**SMITH METER COMPANY**

SUBSIDIARY OF A. O. SMITH CORPORATION

FACTORY: 5743 SMITHWAY, LOS ANGELES 22, CALIF.

Sales Offices: NEW YORK, CHICAGO, HOUSTON,  
LOS ANGELES. Canadian Representatives: Toronto,  
Vancouver. International Division: Milwaukee 1,  
Wisconsin. Local Agents in Principal Cities.

When inquiring specify CP 4106 — see handy form pages 2-3

# MERCURY SWITCHES By MERCOID



Mercury switches bearing the registered trade mark name of "Mercoid" are not subject to open arcing, oxidation, corrosion, pitting or sticking of the contacting surfaces.

There are numerous applications where these switches have a definite advantage over the open contact type switches.

Mercoid switches are available to the trade in various designs, sizes and capacities.

Our engineers gladly offer their assistance in the adaptation of our switches to your switch problems.

Further information sent upon request.

THE MERCOID CORPORATION, 4201 BELMONT AVENUE, CHICAGO 41, ILLINOIS

When inquiring specify CP 4107 — see handy form pages 2-3

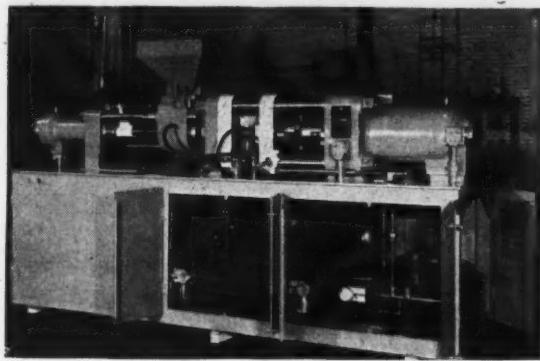
FEBRUARY, 1948

## Processing Equipment

tion with minimum of moving parts and adjustments. Design permits operator to inject material into atmosphere without entering mold. Improvements include higher mold clamping capacity and larger platen area for accommodating larger molds.

**DESCRIPTION** — Self-contained hydraulic power system comprises a single gear pump working in conjunction with newly designed Hydro-Power pressure booster, both driven by a direct-connected 15 hp. motor. Easily accessible power system, unit-mounted in base, supplies working pressure of 2250 psi.

Gravity feed system utilizes a lightweight, windowed sheet steel hopper, 50 lbs. capacity, hinged at base for access to feed chamber and ease of cleaning entire feed



All-hydraulic 4 oz. plastics injector

unit. Sprues and gates from moldings may be fed directly into chamber through convenient opening adjacent to plunger. Feed mechanism is self-compensating, automatically providing correct amount of material at all times.

Internal booster ram effects rapid mold closing, and main double-acting ram supplies live hydraulic pressure up to 125 tons for sealing mold. Position of automatic shutoff of pressure from booster to main ram is adjusted by rotating a nut at cylinder end. This provides automatic slowdown of mold clamp ram at predetermined position, resulting in total elimination of die slam, especially beneficial when using inserts.

Clamp ram closes at 530" per min., opens at 355" per min. Forward mold clamp travel is limited by hydraulic by-pass arrangement, eliminating need for stop collars on tie rods. Opening speed of injection ram is 475" per min., and enlarged injection plunger has injection capacity of 527 cu. in. material per min., delivered at 20,000 psi. Injection pressure and speed are adjustable through convenient handwheel valves.

Movable die head is solid steel plate, and can be moved forward by 2 hydraulic cylinders for easy access to heating chamber. Stationary head is U-shaped for easy removal of heating chamber. Injection chamber has 3 kw multiple zone heating system with cast aluminum electric band heaters and indicating temperature controls. Vertical mounting between tie rods and using full vertical platen dimensions permits use of molds up to 15½ x 21". Horizontal mounting gives max. mold dimensions of 12 x 24½". Model 125-H-4. Bulletin 4701.

THE HYDRAULIC PRESS MANUFACTURING CO., Dept. CP, Mt. Gilead, O.

When inquiring specify CP 4108 — see handy form pages 2-3

**It says  
"STOP" to Solids—  
"GO" to Fluids**



A BETTER Strainer to "police your pipelines"

• FIRST — The Screen, a high-grade woven Monel wire basket that catches solids—lets condensate, oil or other fluids flow freely.

• SECOND — Finish. Cadmium plated for protection against corrosion and for better appearance.

• THIRD — Easily Cleaned. Blow-off bushing made for easy removal. Bushing and Screen come out together. Screen automatically aligns on reassembly.

• THOUSANDS IN SERVICE — Sold by nearly 150 Mill Supply Houses.

6 sizes from ½" to 2" for pressures up to 600 lb. Reasonably priced. See your supply house or write for Bulletin S-201.

## YARNALL-WARING COMPANY

125 MERMAID AVENUE • PHILADELPHIA 18, PA.



## YARWAY STRAINERS

When inquiring specify CP 4109 — see handy form pages 2-3



## Processing Equipment

requirements so that case hardening is prevented. Dried starch is discharged from delivery end of machine in form ideally suited to further use. Moisture content is 13.6% (BSWB) in contrast to 78.5% (BDWB) upon entering dryer. Drying time is 32 minutes.

The drive of the conveyor is by motor through the medium of a variable speed transmission. Regulation is easily achieved from outside the drying machine.

Fans are of the no-overload turbine type. Heating units are of the fin-pipe type. The housing of these continuous conveyor-dryers is of all metal construction designed for strength and rigidity. The structural framework is enclosed by panels consisting of two sheets of metal encasing an abundance of efficient insulation. Sectional construction permits changing length of machine easily.

PROCTOR & SCHWARTZ, INC., Dept. CP, 7th St. and Tabor Road, Philadelphia 20, Pa.

When inquiring specify CP 4113 — see handy form pages 2-3

### ★ Anchors Pipe Hangers to Steel or Concrete in 20 Seconds

*Self-contained, 4-1/2 lb. tool fires blank cartridge, instantly pins steel to steel, concrete or wood*



Using 4-1/2 lb. power driver

20 seconds." Imbedded studs withstand "thousands of pounds" tension; yet, the driver is extremely lightweight. Completely self-contained, without trailing cables, hoses, or outside power source. May be operated in any position or location. Silent, flashless and without recoil. Speeds many types of installations, saving time and money.

**DESCRIPTION** — Power is supplied by utilization of energy contained in a blank cartridge. Weight, 4½ lbs. Consists of integral handle and firing unit containing firing pin and safety arm, barrel, muzzle cap and the proper stud.

Stud is inserted in barrel and assembly is screwed into firing unit with muzzle cap in place. With driver in position, rotate safety arm to firing position and push handle sharply forward, firing cartridge and driving stud home. Interchanging barrels will accommodate one driver to several specialized applications. Studs for steel or concrete are either  $\frac{3}{8}$ ", 16-thread, or straight shank type with flared head. Bulletin TA-14.

MINE SAFETY APPLIANCES COMPANY, Dept. CP, Bradford, Thomas and Meade Sts., Pittsburgh 8, Pa.

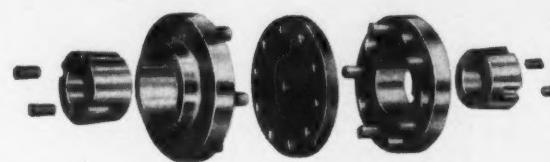
When inquiring specify CP 4114 — see handy form pages 2-3

# NOW! TAPER-LOCK\* FLEXIBLE COUPLING!



It's new! It's different! A packaged Flexible Coupling... available from stock... and ready to install without reboring. It's another Dodge development for mechanical power transmission that saves time, cuts cost!

\* TRADE MARK REGISTERED U.S. PAT. OFF.



- ✓ Built with the famous TAPER-LOCK bushing (patented).
- ✓ Available from stock in a wide range of standard bores. *No reboring!*
- ✓ Fastens to shaft with the firmness of a shrunk-on fit.
- ✓ Easy on—easy off. Can be disconnected without moving coupled machines.
- ✓ Compact design occupies minimum space on shaft. Safe! No projecting parts.
- ✓ "Pin Type" design with oak tanned sole leather center disc provides flexibility, resiliency and strength.
- ✓ Made of close grained semi-steel and machined all over to insure balance and true running.

DODGE MANUFACTURING CORPORATION  
MISHAWAKA, INDIANA



# DODGE

of Mishawaka, Ind.

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FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY,  
ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

When inquiring specify CP 4115 . . . see information request blank, pgs. 2-3

CALL THE TRANSMISSIONEER  
(or write the factory) for complete bulletin on this newest Dodge contribution to better mechanical transmission of power. The Transmissioneer—your local Dodge distributor—is a factory trained specialist. Look for his name under "Power Transmission Equipment" in your classified phone book.





**N**ewark metallic filter cloth is ideally suited for use in the process industries. It is woven firmly and uniformly with carefully selected and annealed wire and has the special Newark overlap weave for strength and exceptionally long service life.

Newark metallic filter cloth is available in the finest of meshes, in metals such as aluminum, brass, Monel, nichrome, nickel, stainless steel, gold, silver and platinum, in rolls or cut to fit your requirements.

**NEWARK  
for ACCURACY**

**Newark Wire Cloth  
COMPANY**

336 VERONA AVENUE • NEWARK 4, NEW JERSEY

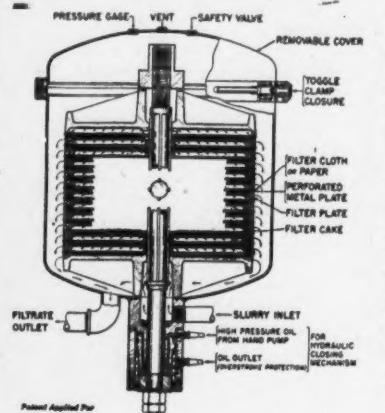
When inquiring specify CP 4116 — see handy form pages 2-3

Page 64

## Processing Equipment

### Horizontal Plate Pressure Filter Has Center Feed

Hydraulic closing mechanism employed. Entire filter cartridge can be easily removed as a unit



Sectional view of horizontal plate pressure filter

the cake cannot break or fall off the plate.

Slurry is fed through the center channel into each plate simultaneously and clear filtrate discharges from the periphery of each plate into the tank. Since filtering pressure

**USES** — Filters any fluid from the lightest, most volatile liquid to heavy slurries or viscous materials. For clarification, purification, decolorizing, polishing, extraction, or solids recovery operations.

**FEATURES** — Horizontal filter plates permit building up a firm filter cake of uniform density and thickness on the plate surface. Lying in a horizontal plane,



WITH A

### BROOKFIELD SYNCHRO-LECTRIC VISCOMETER

At last, Point of Process Viscosity readings are not only practical, but simple, rapid, and accurate as well. The Brookfield Viscometer is portable and plugs into any ordinary electrical outlet for connection. Operation is completely automatic and readings are given directly in centipoises.

### ONLY A BROOKFIELD HAS ALL THESE ADVANTAGES

- Portable — use in lab and plant
- Rapid — readings in 30 seconds
- Accurate — within 1% of range
- Simple — no technical knowledge is required to operate or to read
- Rugged — built to take plant handling without getting out of order.

**BROOKFIELD**  
ENGINEERING LABORATORIES, INC.

210 Porter Street, Stoughton, Mass.

Please send me your new 8 page booklet describing and illustrating the various Brookfield Models and their uses.

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Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_



**MULTI-HOOD FUME EXHAUST** does not employ protruding nipples. System consists of a horizontal fume exhaust manifold, vertical self draining stack with built-in Venturi ejector, and powerful motor blower. Tellurium lead used throughout stack and manifold.

**VENTURI ASPIRATOR** draws fumes from manifold, thoroughly condenses and mixes the fumes with water, ejects diluted acid to drain.

**SEAMLESS COPPER MANIFOLDS**. Rigid and durable, each manifold is a single length of tubing with no couplings or joints.

**SEAMLESS COPPER CONDENSER JACKETS**. Outside diameter 17". High ratio of condenser surface to water mass. High flow-velocity promotes condensing efficiency. No stagnant water pockets. Jacket braiding. Assembly is absolutely leak proof.

**BLOCK TIN TUBES**. Tin condenser tubes are  $\frac{3}{8}$ " I.D.,  $\frac{1}{2}$ " wall, pure block tin, not a tin coated base metal.

**REINFORCEMENT**. Condenser tubes protected by brass sleeves at top and bottom where tubes protrude through the manifolds.

**SELF-SEALING PACKING**. Prevents leaks, renders joints positively watertight. Compresses against reinforcing sleeve - does not constrict condenser tube.

**LEAK-PROOF STUFFING BOXES** at upper and lower manifolds where condenser tubes protrude. Cleanout caps located at each end of upper and lower manifolds.

See Your Laboratory Supply Dealer

Precision Scientific Company

4500 FORKLAND ROAD • CANTON 18 • CLEVELAND, OHIO  
Sales Service and Maintenance Department

When inquiring specify CP 4117 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

*Since 1925*

## HILCO EQUIPMENT

has been purifying a wide variety of lubricating, fuel, and industrial oils.

EQUIPMENT SERVICED BY HILCO in the Chemical Industry includes:

\* VACUUM PUMPS—lubricating and sealing oil maintained free from grit, sludge, acid, moisture and dissolved gases.

\* COMPRESSORS — kept free from carbon and varnish deposits.

\* DIESEL ENGINES — lube oil constantly kept in condition of new oil, greatly extending engine life; fuel oil filtered, promoting combustion efficiency.

\* TRANSFORMERS — insulating oil fully desludged, neutralized, dehydrated and de-aerated without taking transformers out of service.

TYPICAL HILCO CONTINUOUS VACUUM PUMP OIL PURIFYING SYSTEM



Oil is purified after each pass through pump.

THE HILCO OIL RECLAIMER is a miniature refinery which by continuous operation removes oil contaminants from a lube system as fast as they are formed or introduced, thus maintaining the oil at new oil specifications.

PROTECT YOUR INVESTMENT in process equipment by keeping the lubricating systems clean. HILCO equipment is available to take care of all types of oil purifying problems.

THE HILLIARD CORPORATION  
207 W. Fourth St., ELMIRA, N. Y.

WRITE TO-DAY!  
FOR  
FREE INFORMATION

THE HILLIARD  
Corporation  
ELMIRA, N. Y.  
PLEASE SEND YOUR  
BULLETIN NO. R-180

NAME \_\_\_\_\_  
COMPANY \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_

When inquiring specify CP 4119  
— see handy form pages 2-3

FEBRUARY, 1948

## Processing Equipment

builds up only within the filter cartridge, and since only clear filtrate flows into tank, there is residue, no pressure in the tank.

DESCRIPTION — Filter tank, cartridge of plates and center shaft, i.e. all the parts which come in contact with the material to be handled, may be made of the metal best suited to meet the required conditions: steel and cast iron, stainless steel, Monel metal or nickel, aluminum or bronze, rubber-lined or plastic-coated steel and cast iron.

Tank is of all welded construction, with a smooth interior and dished bottom for easy drainage and cleaning. Filter plates are of cast metal, machined for accurate assembly. Center shaft and fittings are precision machined and assembled. A small hydraulic hand pump for tightening the filter assembly and for release is conveniently located adjacent to the filter.

Designed for a maximum internal pressure of 60 p.s.i. No pressure in the tank. To filter slurries at any desired, controlled temperature, the tank may be jacketed partially or fully for steam, hot water, oil or brine circulation.

Standard filters are made with plates of 16½" diameter with an effective filtering area of 1.3 sq. ft. per plate and 24" diameter with an effective filtering area of 2.9 sq. ft. Cake chamber spaces of ½", 1" and 2" are available.

T. SHRIVER & COMPANY, INC., Dept. CP, 810 Hamilton St., Harrison, N. J.

When inquiring specify CP 4120 — see handy form pages 2-3

\*

## Flexible Hose Pours Flammable Liquids in Hard-to-Reach Spots

Lessens spillage, dispersal of flammable vapors from safety cans



Flexible hose attachment

USES — Flexible hose attachment for application to all "Justrite" safety cans ½ gal. or larger manufactured since November, 1945. Cans are used for storing, pouring flammable liquids, and hose is especially designed for use in hard-to-reach spots.

FEATURES — Facilitates pouring of flammable liquids, lessening spillage and dispersal of flammable vapors.

DESCRIPTION — Attachment consists of 9-½" flexible metal hose, a brass cup and removable strainer. Steel bracket holds unit firmly attached to can. When attached, hose is flexible enough to be turned to any position, yet rigid enough to remain there. Model 1088.

JUSTRITE MANUFACTURING COMPANY, Dept. CP, 2063 N. Southport Ave., Chicago, Ill.

When inquiring specify CP 4121 — see handy form pages 2-3

Impeller and renewable shaft sleeve removed . . .

WITHOUT DISTURBING PIPING!

## MORRIS TYPE "R" SLURRY PUMP

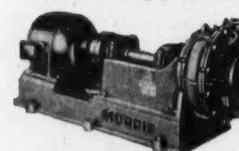
• Quick, easy access to impeller assures minimum lay-up time



To take out impeller and shaft sleeve, you merely remove four bolts and take off the end cover. No need to touch the suction and discharge piping. It's just as simple as a boy's mechanical set.

### Stuffing Box maintenance at an all-time low

The Morris Type R differs radically from conventional end-suction type slurry pump. This newest Morris pump takes its suction from the driveside only. Hence, the packing is subjected to suction or positive head pressures only. The stuffing box is not nearly as vulnerable to entrance of solids. Not affected by fluctuating pressures in the sealing water main.



### Easy Impeller Adjustment

Worn clearances on suction side of impeller can be very easily closed by four adjusting screws. This adjustment moves the entire rotating assembly as a unit, including impeller shaft, bearing and bearing housing.

FOR YOUR MINING OPERATIONS, use the Morris Type R Slurry Pump for mixtures containing ore concentrates . . . tailings, slag and residue from filters and classifiers . . . for handling all types of caustic or acid mixtures containing abrasives or solids.

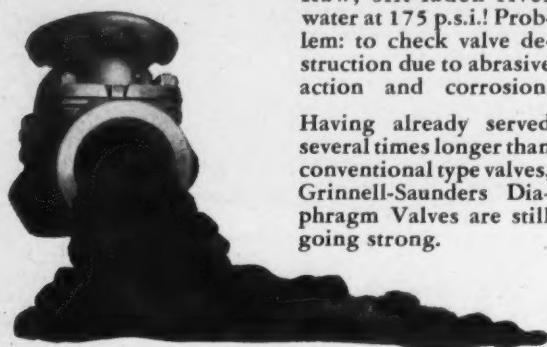
Every Morris Pump is backed up by the engineering skill of 83 years' experience. It will meet your pumping requirements and do the job with less maintenance . . . less trouble . . . less cost.

**MORRIS**

CENTRIFUGAL PUMPS

When inquiring specify CP 4122 — see handy form pages 2-3

## MISSISSIPPI RIVER MUD is this valve's regular diet



**No corrosion . . .**

**no contamination . . .**

**no clogging . . .**

## with GRINNELL-SAUNDERS DIAPHRAGM VALVES

**ISOLATED WORKING PARTS.**  
The flexible diaphragm isolates working parts of the valve from the fluid, preventing contamination or corrosion.

**CORROSION-PROOF LININGS.**  
A selection of diaphragm materials and also body linings of glass, porcelain, lead, rubber or synthetics to suit your service requirements.

**STREAMLINED FLOW . . .  
POSITIVE CLOSURE**  
Streamlined passage without pockets minimizes friction. Large area of contact of the diaphragm, plus diaphragm resilience, permit positive closure even when solids are trapped.



Write for catalog  
"GRINNELL-SAUNDERS  
DIAPHRAGM VALVES"

GRINNELL COMPANY, INC.  
Providence 1, R.I.  
BRANCH WAREHOUSES IN PRINCIPAL CITIES

# GRINNELL

WHENEVER PIPING IS INVOLVED

When inquiring specify CP 4123 — see handy form pages 2-3

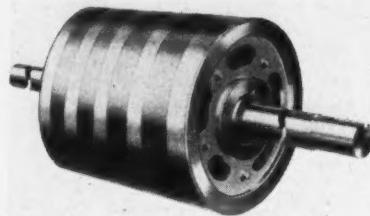
Page 66

## Processing Equipment

### Removes Tramp Metal from Belt-Conveyed Materials

*Permanent magnetic pulleys, separators,  
handle chemicals, plastics, foods*

**USES** — Permanent magnetic pulleys and separators for removing tramp iron and steel particles from proc-



Permanent magnetic pulley

essing. For chemicals, minerals, paper pulp, seed, sand, textiles, plastics, metals, etc.

For grain, foods and liquids.

Pulleys are for use as head pulleys in belt conveyor systems, removing ferrous metal particles and pieces from materials being conveyed.

**FEATURES** — Removal of tramp metals eliminates a

**Eriez** NON-ELECTRIC  
PERMANENT MAGNETS

*Save their cost quickly*

by eliminating tramp iron fire hazard  
by protecting production machinery  
by preventing product contamination



For Full Details Write  
Today for Bulletin 102A

When it's magnetic protection... see Eriez first

ERIEZ MANUFACTURING COMPANY

16 East 12th Street • Erie Pennsylvania

When inquiring specify CP 4125 — see handy form pages 2-3

## USE THE IRONBOUND SHORT-HAUL SYSTEM

*Speed production &  
Minimize effort*



• The Ironbound "Short-Haul" skid is constructed from new billet steel and carefully selected hardwoods. Bolted and welded assembly will carry up to 2500 pounds with absolute safety. Ironbound engineers, located in principal cities, will be glad to make recommendations for speeding production.

**IRONBOUND**  
BOX & LUMBER COMPANY  
Materials Handling Division  
65 HOFFMAN PLACE • HILLSIDE, N.J.



SEMI-LIVE SKIDS  
SKIDS • DOLLIES  
FLOOR TRUCKS

When inquiring specify CP 4124 — see handy form pages 2-3

## Wood Stave Tanks



... for Storage Purposes

Wood Stave Tanks afford utmost efficiency and lowest maintenance requirements for the Chemical and Allied Industries.

SANTA FE has been building regular and specially designed Wood Stave Tanks for half a century... your assurance of expert workmanship, of long-lived, economical wear.

For the storage of water, acids, alkalies and salts, it will pay you to investigate the advantages of SANTA FE Wood Stave Tanks. Your assurance of quality—SANTA FE.

A WORKING CREED

The Will  
to do  
RIGHT

43 YEARS OLD

• CYLINDRICAL • WOODEN TANKS & PIPE • MULTI-FIN UNITS

SANTA FE TANK & TOWER COMPANY

DIVISION OF INDUSTRIAL MANUFACTURES  
2001 NO. BOTTLE AVENUE • Telephone LAfayette 0184 • LOS ANGELES 11, CALIFORNIA

When inquiring specify CP 4126 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Processing Equipment

primary cause of explosions, fires, broken equipment, injured personnel and impurities of product.

Non-electric. No wires or generator. Permanent.

**DESCRIPTION** — Pulleys are cast aluminum and steel, available in all standard diameters above 10", and in widths that are multiples of 6". Amply ventilated to dissipate heat generated by friction or slipping belts. A 6-page bulletin contains full details.

THE HOMER MANUFACTURING COMPANY, INC., Dept. CP, Dept. C-14, Lima, O.

When inquiring specify CP 4127 — see handy form pages 2-3

### Dries Gas, Air Flows Up to 100 cu. ft. per hr. in Lab

Portable, activated alumina dryer achieves minus 60° C. dewpoints and lower



Laboratory Lectrodryer

**DESCRIPTION** — Readily obtains dewpoints as low as minus 60° C. and lower, and in actual practice has dried gases to dewpoints well below minus 76° C. Dries with activated alumina by means of solid adsorption. Aluminum construction. Adsorbs about 5,500 grains of moisture before reactivation is necessary.

To reactivate, plug cord into 110 volt AC or DC light socket for 2 or 3 hrs. During reactivation a small quantity of air is passed through dryer and carries off released moisture. Although capable of operating on pressures as low as 2" of water, it is built as standard for operation on pressures up to 15 psi.

PITTSBURGH LECTRODRYER CORPORATION, Dept. CP, P. O. Box 1766, Pittsburgh, Pa.

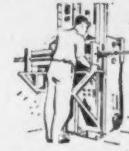
When inquiring specify CP 4128 — see handy form pages 2-3

# BROWN FINTUBE

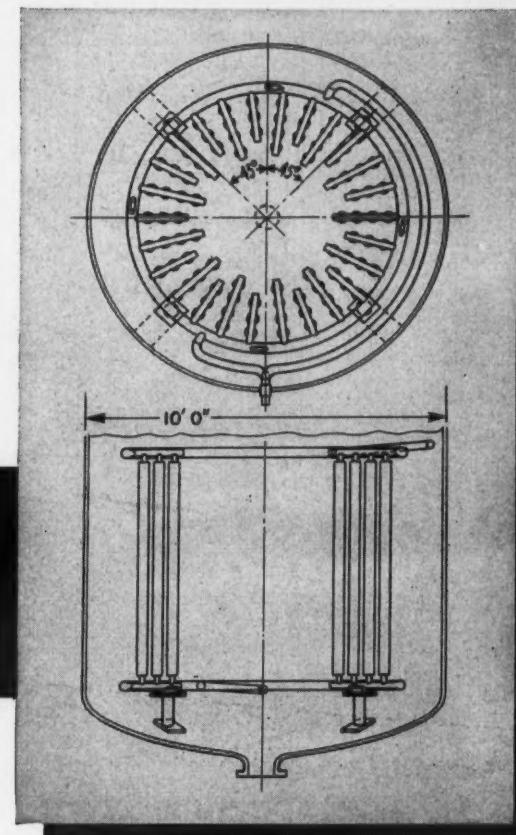
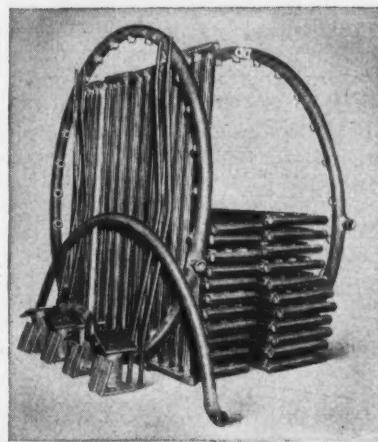
Integrally Welded Fintubes and Fintube Heat Transfer Products

ELYRIA

OHIO



## ENGINEERING DATA SHEET No. 81



### Steam TANK HEATERS

**PROBLEM:** To heat a charge of soluble soap—rapidly—in a large deodorizing tank without sacrificing too much of the total tank capacity to the heating coils.

**SOLUTION:** 91 Brown Fintubes 6' 2" long, with 16-3/4" fins integrally welded to 1-1/2" pipes, a total of 1416 sq. ft. of heating surface (equivalent to 2841 feet of bare pipe coil). These are assembled as 13—4 tube sections and 13—3 tube sections. The sections are mounted vertically, connected into steam feed and condensate discharge rings, and the entire assembly supported inside the tank on pedestals—see diagram.

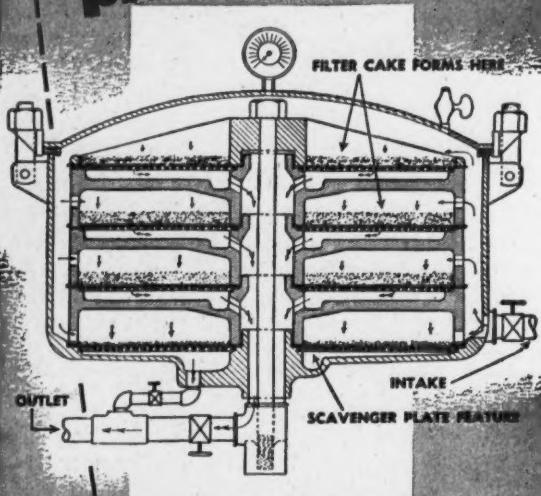
**RESULT:** The soap solution is heated to approximately steam temperature quickly—and—due to

the difference in gravity between the hot and cold solutions—rises rapidly around the 6' 2" long finned sections, forming a thermal siphon. This rapid "flow" within the tank prevents any localized overheating, greatly increasing the rate of heat transfer, and reducing the time required to treat each batch. And since the finned tubes occupy only 14 cu. ft.—as compared to 56 cu. ft. that would be required by a bare pipe coil—a maximum of tank capacity is available for processing the material.

LET BROWN FINTUBE ENGINEERS WORK WITH YOU ON YOUR NEXT HEAT TRANSFERRING JOB!

When inquiring specify CP 4129 . . . see information request blank, pgs. 2-3

# the horizontal plate principle



... makes these the "filters that filter all liquids" —

## SPARKLER Horizontal Plate FILTERS

... here's the story:

- Sparkler Horizontal Plate Filters handle any liquid from heavy varnishes to light alcohols, including products such as acids, oils, beverages, milk, pharmaceuticals, plating solutions, water, etc.
- Equally efficient performance on intermittent or continuous operation, under a wide range of temperature, pressure and viscosity conditions.
- Equally effective whether removing carbons and contact clays or clarifying and polishing with filter aids.
- Patented Scavenger Plate permits complete batch filtration. (It's virtually an auxiliary filter with an independent control valve.)
- Unexcelled filter cake stability — no slipping or breaking.

... why?

Because filter media are supported on a horizontal plane and filter aids floated into position uniformly, filtration takes place uniformly over entire filtering areas. Flow through filter is always with gravity. Sparkler Filtration Is Engineered Filtration—we invite correspondence on your problem. You will receive the advice of filtration scientists with a quarter of a century of experience in a specific field.

**SPARKLER MANUFACTURING CO.**  
MUNDELEIN, ILLINOIS

When inquiring specify CP 4130 — see handy form pages 2-3

Page 68

## Processing Equipment

### Concentric-Cased Centrifugal Pump Reduces Turbulence

Permits wide capacity, head changes; handles corrosives, slurries containing solids

**USES** — Centrifugal pump for handling slurries containing solids and materials in suspension. For wide application in corrosive services.

**FEATURES** — Design eliminates much cavitation and turbulence. Permits rapid repairs and wide range of changes in capacity and head requirements with minimum effort. Flexibility of application plus high interchangeability of parts. This permits manufacturer to stock spare parts for all units, he reports, reducing user's inventory to emergency replacements.

**DESCRIPTION** — Single-stage, and suction type with concentric casing for reduced turbulence and large, non-clogging fluid passages. Four easily-removed parts contact pumped fluids. Furnished in any workable alloy, they include casing, impeller, wear plate and shaft. Simple change of impeller diameter or of casing and impeller size gives wide range of capacities and head requirements. Manufacturing rights purchased from Sherzer Pump Company, which has produced this type pump for 10 years, exclusively for 2 major chemical companies.

MISSION MANUFACTURING COMPANY, Dept. CP, Houston, Tex.

When inquiring specify CP 4131 — see handy form pages 2-3

### HERE'S HOW OTHERS USE ROLACODER TO ELIMINATE COSTLY EXTRA OPERATIONS FOR CONTAINER MARKING...

ROLACODER is the friction operated marking machine that automatically imprints clear, sharp legends containing up to 5 lines of type on cartons, cases, kegs, drums, etc. Saves time and labor — makes neater imprint — eliminates costly extra operation for stamping or stenciling.



One of these typical ROLACODER applications may show how you can reduce marking or coding costs ... improve packaging efficiency.

#### ROLACODER Is Used:

By:	For:	On:
Sterling Drug Co. (Castoria)	Code-date on side of shipping cartons	Case sealer compression section
Socony-Vacuum Oil Co. (Oil in cans)	Product identification (2-3 lines) on carton ends	Belt Conveyor
Mennen Co.	Contents identification and code on case side	Belt Conveyor
Personal Products Co.	Code on case side	Case sealer compression section
Johns-Manville Corp. (Asphalt Shingles)	Color and date on bundles	Roller conveyor
Flintkote Co. (Roofing Paper rolls)	Color and number on wrapper	Gravity chute

Write today for Data Sheet No. 60, containing full information about ROLACODER ... also new brochure describing complete line of Marking Machines. Please state exact nature of your marking requirements.



**ADOLPH GOTTSCHO, INC.**

MACHINES TO MARK WHATEVER YOU MAKE

195 Duane St., New York 13, N. Y.

When inquiring specify CP 4132 — see handy form pages 2-3

## BARBER-COLMAN

### MICRO SYSTEM FOR PROCESS CONTROL



MICROTHERM

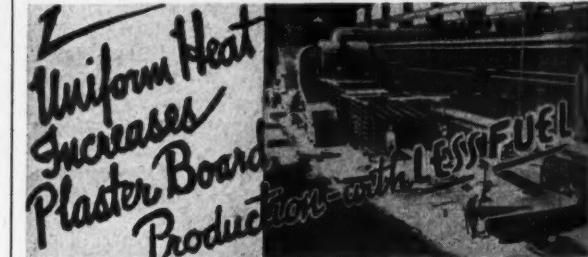
By using a solenoid-loaded contact tongue, with the pull of the solenoid governed by a rheostat on the valve motor shaft, the Microtherm is able to position the Proportioning Valve so as to satisfy exactly any change in demand. Features include simple construction, no relays, and maximum power at all points of valve stroke. "Hunting" is eliminated and the valve is positioned quickly with "micrometer accuracy." Write for Bulletin "CONTROLS FOR INDUSTRY."



PROPORTIONING VALVE

BARBER-COLMAN COMPANY  
1203 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP 4133 — see handy form pages 2-3



### —and Saves \$5600 a year

After installing a Cochrane C-B System of High Pressure Condensate Return, a New Jersey manufacturer of gypsum plaster board now saves \$5600 a year on fuel while stepping up production to an impressive 10,000 sq. ft. of plaster board an hour, 24 hours a day, 6 days a week. The success of this and hundreds of other C-B System installations lies in the MAINTENANCE of HIGH and UNIFORM TEMPERATURES at equipment.

For details write for Publication 3250.  
**COCHRANE CORPORATION**, 3162 N. 17th Street, Phila. 32, Pa.

**COCHRANE** CONDENSATE  
**C-B** BOOSTER SYSTEM  
OF HIGH PRESSURE, HIGH TEMPERATURE CONDENSATE RETURN

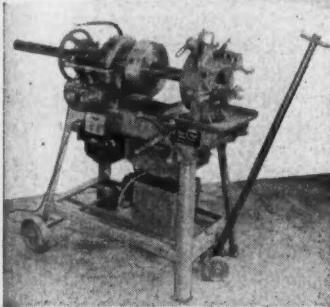
When inquiring specify CP 4134 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Processing Equipment

### Cuts, Threads, Chamfers, Reams 6 Pipe Sizes: No Die Change

*Self-opening dies eliminate "backing-off;" accessory extends range for  $\frac{1}{8}$ " to 12" sizes*



Portable power pipe threader

**FEATURES** — Selects size instantly by flipping a lever. Reams, threads, etc., without changing dies. Work is quickly completed, even by unskilled operator. Cuts any length thread. Portable. Eliminates "backing-off."

**DESCRIPTION** — Simple auxiliary equipment extends range to  $\frac{1}{8}$ " to 12". "Double Quick" die head selects size by flipping lever. Automatic stop opens dies after standard length pipe threads are cut. However, any length thread may be cut, and users report cutting continuous pipe and bolt threads up to 10' long.

Where straight pipe can be inserted into, and gripped by chucks, fitting can be unscrewed by power and rotation of machine after fitting has been "started" by large wrench and sharp pull or blow. Unit has built-in tool tray and handy dope cup. Switch for 1 hp motor incorporates double electric outlet for lights and small power tools. Safety features include built-in chuck, wrench ejector, electrical overload protection, automatic power pump coolant system.

AMERICAN DIE and TOOL COMPANY, Dept. CP, 210 Buttonwood St., Reading, Pa.

When inquiring specify CP 4135 — see handy form pages 2-3

### Rising Stem Angle Valves Are 18-8 MO, in Sizes 1-1/2, 2, 3"

*Special swivel permits application of pressure in closing without turning valve on seat*

**USES** — Stainless steel angle valve with rising stem for use in the processing industries.

**FEATURES** — Eliminates need for additional stainless steel fittings on many applications, manufacturer reports.

**DESCRIPTION** — Available in 1-1/2, 2, 3" sizes. Made of 18-8 MO, type 316, with renewable valve seat of neoprene, hard rubber or fiber. Specially-designed swivel allows pressure to be applied in closing without turning valve on seat; therefore, eliminates cutting or abrasive action.

VALLEY FOUNDRY & MACHINE WORKS, INC., Dept. CP, Fresno, Calif.

When inquiring specify CP 4136 — see handy form pages 2-3

# INSTRUMENTATION IS KING and LESLIE features simplicity



**Controllers and Regulators** are precision-built, ruggedly constructed and feature, as standard trim, hard faced seat rings, 500 Brinell hardened main valves, corrosion resistant internal parts—all unbeatable combinations engineered to lower your power costs.

**Pressure Reducing Valves** — with narrow throttling range for fast response and high accuracy of regulation. Single-seated for positive dead-end control—low maintenance cost—all internal working parts renewable—complete overhaul without removal from pipe line.

**Pressure Controllers** — with choice of several operating mediums—air, gas, water or oil-operated, designed for non-continuous leakage operation, particularly important for intermittent control of steam flow and emergency make-up or cut-off requirements.



**Diaphragm Regulating Valves** — with single seated, fully balanced, no pressure drop limitation design. Smooth, throttling control and tight shut-off. Furnished up to 8" inclusive, semi-steel and bronze bodies. Cast steel,  $\frac{1}{2}$ "—4".



**Pump Governors** — with automatic reset by balancing the delivered steam pressure with two equal and opposing metal diaphragms separated by a restricted orifice for reciprocating and turbine-driven pumps. Single seated, hand-wheel adjustment with wide adjustable pressure range.



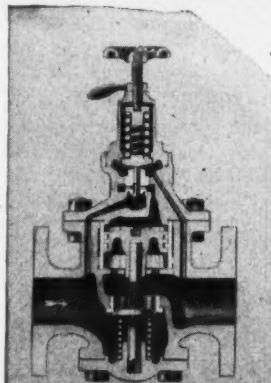
**Temperature Regulators** — with anticipating action accomplished by controlling both pressure and temperature regulation with a single pilot valve. Rugged thermostatic element, diaphragm construction has 100°F. adjustable thermostatic temperature range.

#### LESLIE CO.

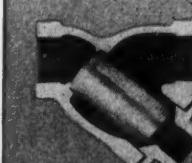
299 Grant Avenue  
Lyndhurst, New Jersey

Look for LESLIE REGULATORS under "Valves" or "Regulators" in your classified telephone directory in the following cities where LESLIE factory trained engineers are located:

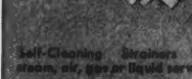
Akron, Ohio	Dallas, Texas	New Orleans, La.	San Francisco, Cal.
Albany, N. Y.	Detroit, Mich.	New York, N. Y.	Savannah, Ga.
Atlanta, Ga.	Greenville, S. C.	Orlando, Fla.	Seattle, Wash.
Baltimore, Md.	Houston, Texas	Philadelphia, Pa.	Spokane, Wash.
Birmingham, Ala.	Kansas City, Mo.	Pittsburgh, Pa.	St. Louis, Mo.
Boston, Mass.	Kingsport, Tenn.	Portland, Ore.	Syracuse, N. Y.
Bridgeport, Conn.	Louisville, Ky.	Providence, R. I.	Tulsa, Okla.
Buffalo, N. Y.	Memphis, Tenn.	Richmond, Va.	Vancouver, B. C., Can.
Chicago, Ill.	Minneapolis, Minn.	Rochester, N. Y.	Wilkes-Barre, Pa.
Cincinnati, Ohio	Cleveland, Ohio	Rutherford, N. J.	Youngstown, Ohio
Montreal, Que., Can.	Honolulu, Hawaii	San Antonio, Tex.	



Pressure Reducing Valves for Steam, Air or Gas. Inlet pressures 5 psi to 1,500 psi steam, 10-3000 psi air or gas.  
Bulletin 461



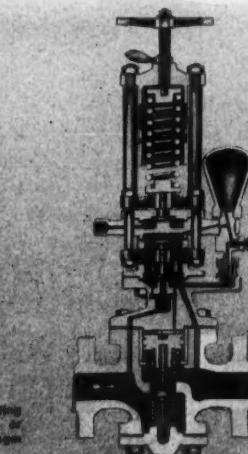
Diaphragm Regulating Valves for controlling steam, hot or cold liquid and gases using movement control. Inlet pressures 0-1500 steam, 0-2000 cold liquid or gas.  
Bulletin 462



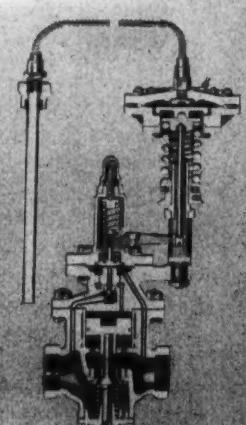
Self-Cleaning Strainers for steam, air, gas or liquid service.  
Bulletin 463



Control Valve for regulating flow of air, clean water, or light oil to operate Diaphragm Regulating Valves.  
Bulletin 464



Control and Excess Pressure Pump Governors for pump discharge pressures 25 psi to 1000 psi.  
Bulletin 465



Temperature Regulators for control of steam, condensate, water, or fluid, for process heating or cooling.  
Bulletin 466

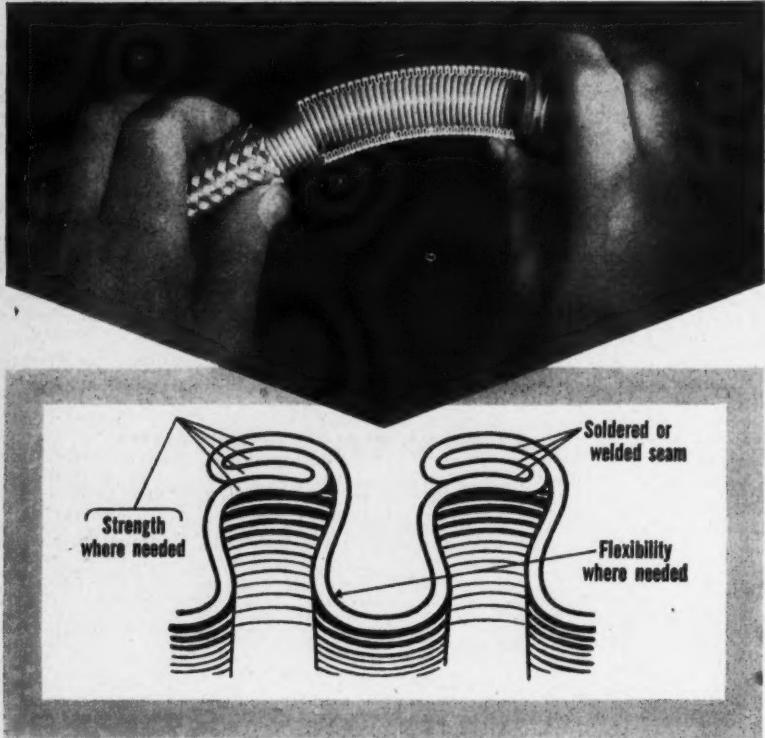
ESTABLISHED 1900

**LESLIE**  
CO.

PRESSURE REDUCING VALVES • PUMP GOVERNORS • PRESSURE CONTROLLERS  
TEMPERATURE REGULATORS • SELF CLEANING STRAINERS • LESLIE-TYFON WHISTLES

When inquiring specify CP 4137 . . . see information request blank, pgs. 2-3

# When the going is ROUGH **Titeflex** stands up



The drawing above illustrates exactly why Titeflex all-metal flexible tubing stands up under the most rugged conditions.

Note that there are four thicknesses of metal at the top of each convolution—right where the greatest wear is encountered.

Note that flexibility is achieved by wall construction without deforming or stretching the metal. There are no packed, sliding joints to wear out or decompose.

Note that the metal strips are soldered tightly together to prevent leakage of both gases and liquids.

Note that Titeflex tubing is all metal—it is unaffected by gas, oil or liquids . . . and withstands high temperatures. Yet it is fully flexible and holds up under excessive vibrations.

Your are invited to make full use of the Titeflex research laboratories and engineering service in solving your tubing problems. Write today for full information. Catalog on request.

**Titeflex, Inc.** 600 Frelinghuysen Ave., Newark 5, N. J.

Exclusive Manufacturers of Titeflex high quality products for more than 30 years

Sales Offices { CHICAGO CLEVELAND DETROIT PHILADELPHIA  
LOS ANGELES BOSTON SAN FRANCISCO TORONTO

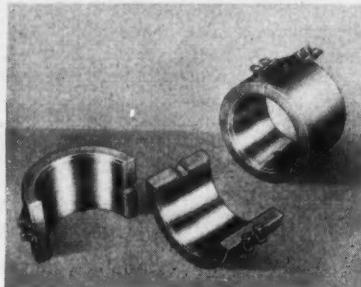
When inquiring specify CP 4138 — see handy form pages 2-3

Page 70

## Processing Equipment

### Tubular Heater Is Useful for Plastics Molding

*Cast-in-aluminum device provides uniform "blanket of heat"*



Electric heating unit

**USES** — Tubular electric heating unit for clamping to cylindrical surfaces. Especially useful for plastic extrusion and injection molding machines.

**FEATURES** — Provides uniform "blanket-of-heat" temperatures.

**DESCRIPTION** — Cast-in-aluminum. Heater is applied to barrel or cylinder as two individual semi-circular units held together by clamping bands. Aluminum absorbs and distributes heat from tubular electric unit, making possible low operating temperatures, long heater life.

Machining of inside diameter assures perfect fit and maximum conduction of heat to cylinder, eliminating hot spots. Heater diameters to fit various barrel diameters and temperature requirements are available.

EDWIN L. WIEGAND COMPANY, Dept. CP, 7517 Thomas Blvd., Pittsburgh 8, Pa.

When inquiring specify CP 4139 — see handy form pages 2-3

\*

### 18-lb. Rubber Bumper Mat Catches Barrels, Drums

*Non-bouncing device speeds handling of heavy materials; won't absorb water*



Rubber bumper mat absorbs shock without bounce

**USES** — Rubber bumper mat for catching steel drums,

## VERSATILE

**REFRASIL**

### FIBROUS SILICA

**WILL IT SOLVE A PROBLEM FOR YOU IN ANY OF THESE USES?**

**AS INSULATION FOR** high temperature power equipment; hot gas ducts; electrical wire and equipment; electric muffle furnaces . . . As a covering for thermo-couple lead wires . . . As a catalyst or catalyst support . . . As incombustible long-life wicking material . . . As a chemically stable, versatile material, the full extent of usefulness of which is only now being realized. Refrasil, originally developed for aircraft jet insulation, has such exceptional properties as . . .

- ★ **WITHSTANDS 2000°F. INDEFINITELY**
- ★ **RESISTANT TO MOST ACIDS**
- ★ **EXTREMELY LOW IN WEIGHT AND BULK**
- ★ **RESISTANT TO VIBRATION**
- ★ **LOW THERMAL CONDUCTIVITY**

#### AVAILABLE IN THESE FORMS:

BATT, in rolls approximately 14' x 3½" x  $\frac{3}{16}$ " thick; CLOTH in rolls of random lengths approximately 32" wide x 0.015" thick; TAPES—SLEEVINGS—CORDAGE, in various sizes and lengths; BULK, in loose fibers; PREFABRICATED BLANKETS, to specification either permanent or removable.

WRITE . . .

**THE H. I. THOMPSON CO.**

Section 25-21733 Cordova St.

Los Angeles 7, Calif.

When inquiring specify CP 4140  
— see handy form pages 2-3

CHEMICAL PROCESSING Preview

**Processing Equipment**

barrels, beer kegs, large containers of all types, empty or filled to capacity with fluids, gases etc. For chemi-use in rain or wet places.

**FEATURES** — Absorbs shock without bounce, speeding the handling of heavy materials. Cut-proof and wear resistant. Does not become water-logged. Easily cleaned.

**DESCRIPTION** — Weighs 18 lbs. Diameter is 18". Thickness, 4½". Tough, sealed outer rubber case with special filler. Equipped with easy-to-grip handle. To clean, wash with water.

KARPEX MANUFACTURING COMPANY, Dept. CP, 1426 E. 19th St., Indianapolis 7, Ind.

When inquiring specify CP 4141 — see handy form pages 2-3

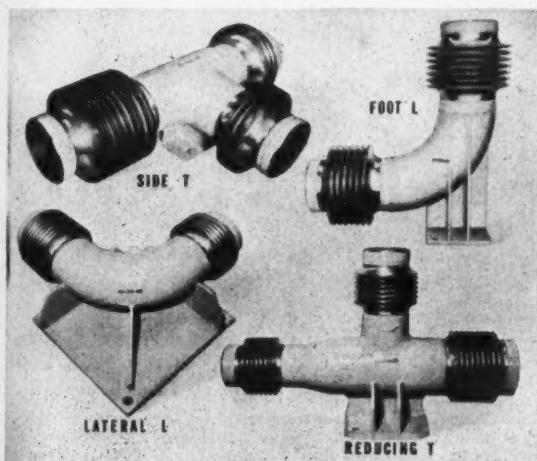
★

### Expansion Joint Steam Fittings Solve Pipe-Layout Problems

Are useful for limited space, multi-expansions; require minimum welding

**USES** — Line of anchor base expansion joint pipe fittings for steam lines. Supplements manufacturer's 6 standard series of packless expansion joints.

**FEATURES** — Complete expansion fittings solve many piping layout problems of limited space and multi-expansions. Require minimum welding, saving time and installation costs. Pipes need only be led to fitting point and joined to proper unit, which is complete with anchoring base.



Anchor base expansion joint pipe fittings

**DESCRIPTION** — Illustration shows 4 typical units, all of stainless steel. Note, in side "T", how number of bellows flanges may be varied to accommodate unequal expansion in each leg.

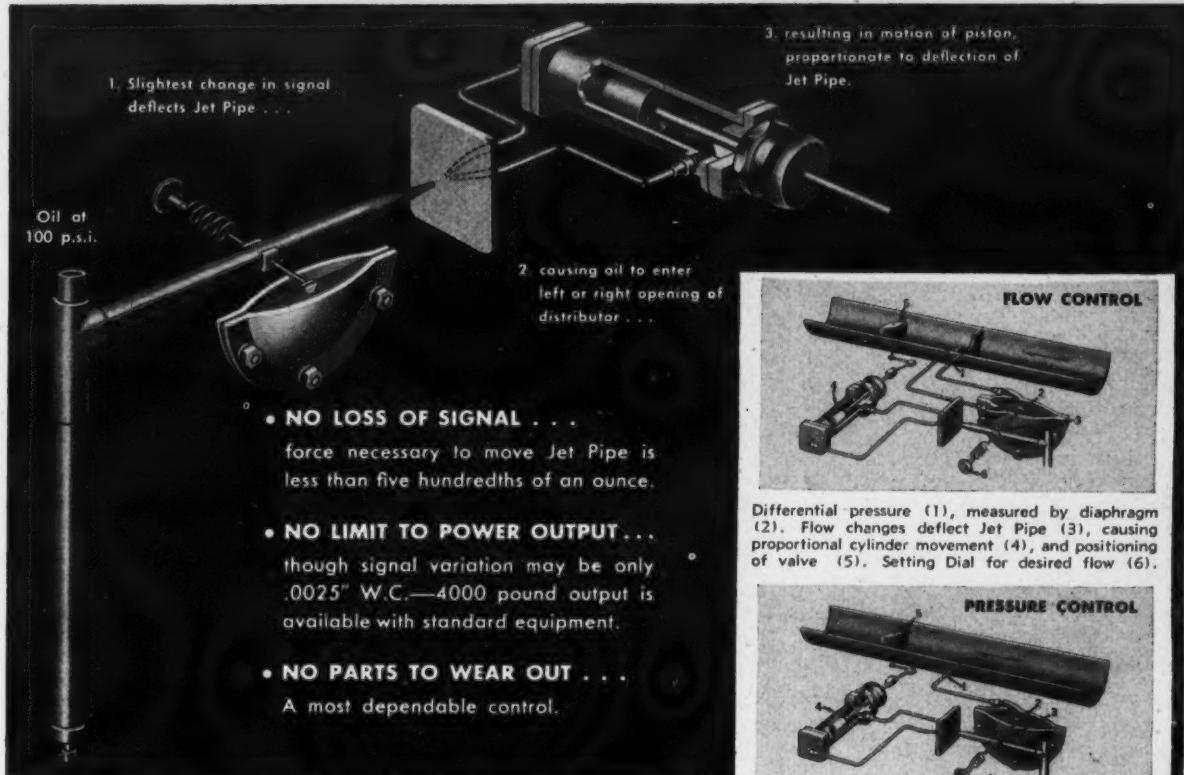
Line supplements manufacturer's regular expansion joints for pressures from 30" vacuum to 1000 psi in pipe sizes from ½" to 72". Greater pressures, larger pipe sizes made to specifications.

COOK ELECTRIC COMPANY, Magnalastic Division, Dept. CP, Chicago 14, Ill.

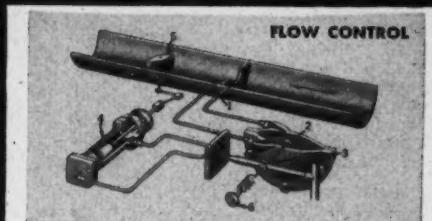
When inquiring specify CP 4142 — see handy form pages 2-3

FEBRUARY, 1948

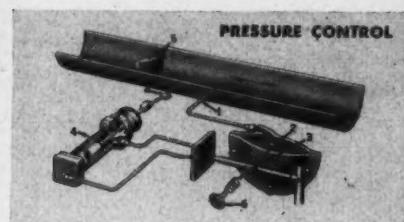
## AN EXCLUSIVE CONTROL PRINCIPLE...



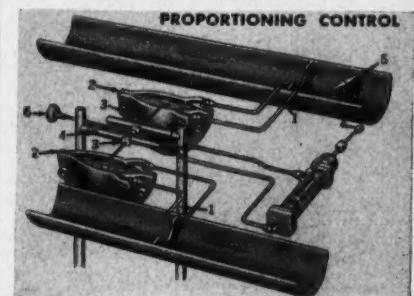
- **NO LOSS OF SIGNAL . . .**  
force necessary to move Jet Pipe is less than five hundredths of an ounce.
- **NO LIMIT TO POWER OUTPUT . . .**  
though signal variation may be only .0025" W.C.—4000 pound output is available with standard equipment.
- **NO PARTS TO WEAR OUT . . .**  
A most dependable control.



Differential pressure (1), measured by diaphragm (2). Flow changes deflect Jet Pipe (3), causing proportional cylinder movement (4), and positioning of valve (5). Setting Dial for desired flow (6).



Pressure (1), measured by diaphragm (2). Pressure changes deflect Jet Pipe (3), causing proportional cylinder movement (4), and positioning of valve (5). Setting Dial for desired pressure (6).



Differential pressures (1), measured by individual diaphragms (2). Signal transmitted to opposite sides of Jet Pipe (3). Any unbalance deflects Jet Pipe (4), causing proportional cylinder movement and positioning of valve (5). Setting Dial for ratio (6).

**ASKANIA** Controls

**ASKANIA REGULATOR COMPANY**

A SUBSIDIARY OF GENERAL PRECISION EQUIPMENT CORPORATION

242 EAST ONTARIO STREET • CHICAGO 11, ILLINOIS

When inquiring specify CP 4143 . . . see information request blank, pgs. 2-3

# SPECIALISTS



GET BETTER RESULTS  
... in medicine and in

## VALVE MANUFACTURE

The superiority of the specialist, in his branch of medicine, over the general practitioner, is widely recognized today. The same thing is true in the manufacture of corrosion-resistant valves.

This Company has specialized in the manufacture of valves of stainless steels and other corrosion resistant alloys for many years. You will find it profitable, as do many leaders in the process industries, to consult our metallurgical service on your requirements. Send for our catalog No. 47 on your letterhead.

**ALLOY STEEL PRODUCTS CO., INC.**  
1302 W. Elizabeth Ave., Linden, N. J.



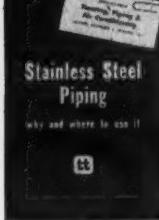
Gate  
Valve  
No. 111

GATE VALVES - GLOBE VALVES  
T VALVES - CHECK VALVES  
SAMPLING VALVES - ANGLE VALVES  
TANK VALVES  
FLANGED, SCREWED and WELDED FITTINGS  
GAUGES GLASS FITTINGS

**ALOYCO**  
*Stainless Steel*  
VALVES and FITTINGS

When inquiring specify CP 4144 — see handy form pages 2-3

## What about STAINLESS STEEL PIPING?



GET THIS BOOKLET

**Stainless Steel Piping—Why and Where to Use It:** This 24-page booklet reprints a series of articles from the publication, Heating, Piping, and Air Conditioning. Covers the subject thoroughly, and discusses applicable welding processes. Mail coupon.

### TUBE-TURN WELDING FITTINGS AND FLANGES

District Offices at New York, Philadelphia, Pittsburgh, Detroit, Chicago, Houston, Tulsa, San Francisco, Los Angeles T.M. Reg. U.S. Pat. Off.



TUBE-TURN—

Tube Turns, Inc., Dept. 2602, Louisville 1, Kentucky  
Please send "Stainless Steel Piping" booklet.

Name \_\_\_\_\_  
Position \_\_\_\_\_  
Firm Name \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

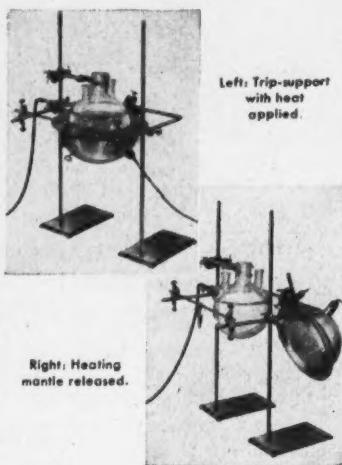
When inquiring specify CP 4145 — see handy form pages 2-3

Page 72

## Processing Equipment

### "Trip-Support" Instantly Removes Heat from Fast Reactions

Water-spray cools flask when more rapid cooling is needed



Left: Trip-support with heat applied.  
Right: Heating mantle released.

**USES** — New type support for instantly removing heat from reactions. For use where reactions are proceeding too rapidly. Promises wide usage for exothermic-type reactions where starting requires some heat, but where heat must be quickly removed.

**DESCRIPTION** — "Trip-Support" consists of supporting stands, a framework holding reaction flask with mantle below, and a trip for quick mantle release.

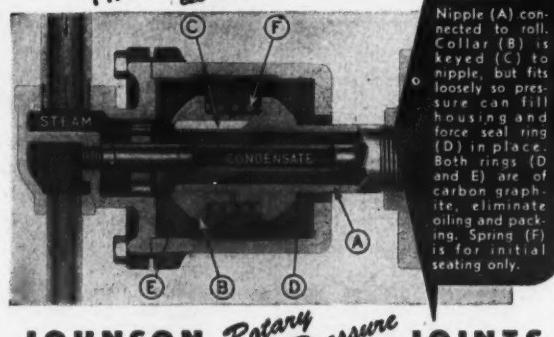
Where more rapid cooling is required, water-spray cooling of flask is provided.

To operate, clamp flask in place, placing mantle in exten-

### Help FOR YOUR STUFFING BOX PROBLEMS ...

Getting steam or liquids into rotating machine parts used to mean a lot of trouble with stuffing boxes and steam fits. The Johnson Joint has changed all that. It's completely packless, self-oiling, self-adjusting and even self-aligning. Industry is finding new uses for it every day. Type B illustrated provides for condensate removal; other styles and sizes for all needs. Write for details.

THE JOHNSON CORPORATION  
226 WOOD ST., THREE RIVERS, MICH.



When inquiring specify CP 4146 — see handy form pages 2-3

### NEW DIRECT DRIVE TUBE CLEANER

#### WEIGHS ONLY 21 lbs.



So light and easy to handle it can be used with or without supporting rig. Handle valve gives operator positive control. Direct drive motor is air or steam driven. Thoroughly cleans all scale conditions.

FOR COMPLETE INFORMATION  
WRITE . . . THE AIRETOOL MFG.  
CO., 331 S. CENTER ST.,  
SPRINGFIELD, O.



N. Y. office: 50 Church  
St., New York 7, N. Y.

When inquiring specify CP 4147 — see handy form pages 2-3

### PIPE INTERSECTION COMPASS



This Compass is a layout tool used for accurately marking the lines of intersection of two pipes (of the same or different diameters) which are to be connected to each other in the form of a right angle, other angles, "y", etc.

With this simple compass the average worker can quickly learn to do expert layout work such as is required in oil fields, refineries, chemical plants, etc. Its cost is quickly recovered thru the saving in time as well as saving in materials over old cut-and-try method.

**COMPASS** complete with chain and 6 soapstone crayons \$32.50 F.O.B. Cleveland, Ohio.

Write for new Catalog No. 26 which covers these and many other items of production and maintenance equipment.

### MARTINDALE ELECTRIC CO.

1358 HIRD AVE.

CLEVELAND 7, OHIO

When inquiring specify CP 4148 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Processing Equipment

sion support. Screw fasteners hold mantle firmly, preventing its dropping out when released by tripping-action. Where reaction proceeds too rapidly, simply move trip at front of unit and heating mantle drops away to rear, removing heat.

A latching mechanism holds mantle at end of swing, preventing its return to the flask. Perforated metal tube surrounding top of flask sprays water on flask where reaction is still too rapid.

GLAS-COL APPARATUS COMPANY, Dept. CP, 1700 S. Seventh St., Terre Haute, Ind.

When inquiring specify CP 4149 — see handy form pages 2-3

\*

### Dust Collector Converts Grinder to Dustless Backstand Sander

*Installation of self-contained, portable unit requires no duct work, few tools*



Grinder converted to dustless backstand sander

connected to another grinder.

**DESCRIPTION** — Conversion is by means of standard backstand attachment, Model 420 dust collector, two lengths of flexible metal hose, and a simple hood for the sander wheel. Self-contained unit includes motor-driven fan, cyclone separator and second stage filter for recirculating cleaned air back to working area to save heat. Backstand and hood are substituted for right hand grinder wheel and its hood. The new hood is fastened on tray of pedestal grinder. A 3" diam. sleeve projecting from rear of hood permits slip fit connection with the metal hose. Dust outlet of other wheel hood is likewise connected to metal hose, and both are fastened to double inlet of the collector. Plugging in electric motor cord completes installation.

Manufacturer reports advantage of sander-belt hood is that heavy chips, scale, etc., usually are not drawn into dust collector, yet are easily removed from sander hood.

AGET-DETROIT COMPANY, Dept. CP, Main at Washington Sts., Ann Arbor, Mich.

When inquiring specify CP 4150 — see handy form pages 2-3

FEBRUARY, 1948

# STURTEVANT Rotary Fine Crushers

Provide Granular Products  
Without Excessive Dust

These fast, highly efficient crushers are designed to crush or granulate soft and moderately hard substances to fine even sizes without large amount of dust. They effectively handle materials up to and including the hardness of the softer limestone or cement clinker. The fineness of product is regulated by a hand-wheel. They produce a dependable quality of output from one inch to a quarter inch. Capacity ranges are available from one to 30 tons per hour depending on size of machine. Open door accessibility allows entire crushing area to be exposed for quick, easy cleaning. Write for information.



**JAW CRUSHERS**  
for coarse, intermediate and fine reduction of hard or soft substances. Heavy or light duty. Cam and Roller action. Special crushers for Ferro-alloys. Several types, many sizes.



**RING-ROLL MILLS**  
for medium and fine reduction (10 to 200 mesh), hard or soft materials. Very durable, small power. Operate in closed circuit with Screen or Air Separator. Open door accessibility. No scrapers, plows, pushers, or shields.



**CRUSHING ROLLS**  
for granulation, coarse or fine, hard or soft materials. Precision and automatic adjustments. Crushing shocks balanced. For dry or wet reduction. Sizes 8x5 to 38x20. Roller or Plain bearings. The standard for abrasives.

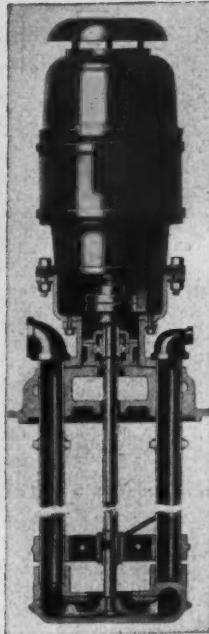
## STURTEVANT MILL COMPANY

119 Clayton Street, Boston 22, Mass.

Designers and Manufacturers of

CRUSHERS • GRINDERS • SEPARATORS • CONVEYORS • ELEVATORS • LABORATORY EQUIPMENT • MECHANICAL DENS AND EXCAVATORS • MIXERS

When inquiring specify CP 4151 . . . see information request blank, pgs. 2-3



## Your Guide to Pumps for Abusive Applications



Ask for your copy of Bulletin 4711—describing a line of horizontal and vertical shaft pumps which have made good on abusive jobs where other pumps failed or proved too costly to maintain. Nagle Pumps embody that coordination of advanced design, correct materials of construction and intelligent application required for pumping corrosive or hot liquids and abrasive or heavily laden mixtures economically. The exposed parts are made of the metal or alloy that offers the highest resistance to the specific attack. Cut-away of type "S-W" pump, left, shows inverted entrance, wet pit type pump. There are five other types, and many modifications.



When inquiring specify CP 4152—see handy form pages 2-3

## Safer! For Corrosive Liquids

The flexible construction of GENERAL All-Rubber Drums eliminates the danger of breakage, spillage and corrosion.

Handling and shipping costs are substantially lower, too, because: These tough little drums (of 13-gallon capacity) are lighter, can be handled faster and more easily by fewer men, can be rolled, stacked high and stored indoors or out—contents are never exposed to light.



*Lighter, unbreakable drums can be rolled—handled—stacked faster.*



GENERAL  
All-Rubber Drums

COMPARE:	Rubber Drum (13-Gal. approx. size)	Boxed Glass Carboy
Weight empty	35 lbs.	70 lbs.
Floor space	1 1/4 sq. ft.	4 sq. ft.
Height	20 1/2 in.	30 in.
Drums to carload	500	250
Total acid weight per car, 60,000 lbs.		30,000 lbs.

Sole Distributor

MAURICE A. KNIGHT, 402 Kelly Ave., Akron 6, Ohio

When inquiring specify CP 4153 — see handy form pages 2-3

## Processing Equipment

### Catalog Shows Full Line Of Round-Chart Indicating Recorders, Controllers

Manufacturer's complete line of round-chart indicating recorders and controllers is included in a 16-page catalog and guide for laboratory and industrial reference. Covers all Model R's, whether for measuring temperature through use of thermocouples, rayotubes or thermohms; or other quantities such as frequency, gas analysis, electrolytic conductivity and pH.

Complete, tabulated specifications on automatic indicating recorders, also indicating and recording controllers. Recording controllers include those for 2-position control or which are integral parts of full proportional control systems of various types. Includes accessories and supplies, suggested chart numbers for more commonly used ranges. Catalog ND44(2).

LEEDS & NORTHRUP COMPANY, Dept. CP, 4934 Stenton Ave., Philadelphia 44, Pa.

When inquiring specify CP 4154 — see handy form pages 2-3

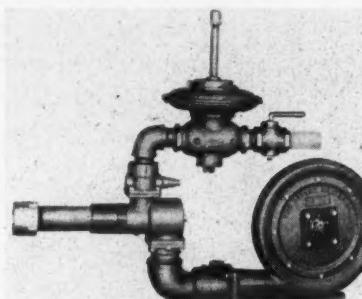
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### Gas Combustion Assemblies Fire Boilers, Air Heaters, Ovens

Capacities of 8 controlled-flame units range from 400,000 to 3,300,000 BTU/hr.

USES — "Packaged" gas combustion assemblies for firing boilers, air heaters, dryers, ovens, kilns, and for use wherever semi-open burners with controlled flames are desired.

For burning any low pressure gas from 400 BTU upwards, at 3 to 11" water column.



Gas combustion assembly

FEATURES — Sensitive adjustment permits choice of hard, sharp flame; long, soft, billowy flame, or any in between. Burner may be placed in line with blower or at right angles to it in either direction, and gas inlet is arranged so that gas may be piped in from any direction.

DESCRIPTION — Combining air handling, gas supply, mixing and burning elements, the assemblies normally are built as single burner units, but can be supplied with twin-nozzle burners. There are 8 capacities ranging from 400,000 BTU/hr., rated at 8 boiler hp, with 1 1/2" gas inlet and 1/3 hp blower, up to largest unit with rating of 3,300,000 BTU/hr. and 66 boiler hp, a 3" gas inlet and 3 hp blower.

Each size is available in 4 variations of control. Type "A" control provides for manual burner lighting and manual air valve setting. Type "B" involves atmos-



### BLAW-KNOX Aquatomic FOG NOZZLES DO NOT FAIL!

Wide clear passages through the heart of this dependable Fog Nozzle makes it virtually non-clogging—always reliable.

It fights fire with the water available—maintains its fog pattern under low pressures in emergency.

Fine but forceful fog gives maximum cooling and quenching effect and drives to the base of the fire in spite of drafts and turbulence.



Also—

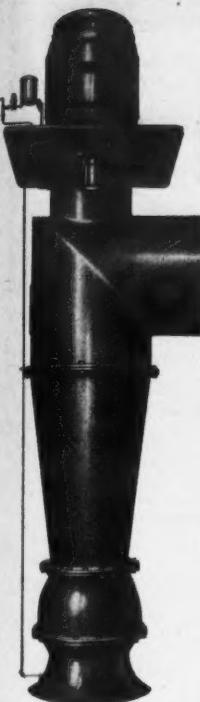
Blaw-Knox offers Standard Wet and Dry Pipe Systems, as well as Thermosetically Controlled Pre-Action and Deluge Systems.

Write for details.

### BLAW-KNOX SPRINKLER DIVISION

831 Beaver Avenue, N.S.,  
Pittsburgh 12, Penna.

When inquiring specify CP 4155  
— see handy form pages 2-3



# GIANTS in the world of Water Pumping

## Peerless Hydro-Foil MIXED FLOW Pumps

CAPACITIES: UP TO 220,000 G.P.M.  
LIFTS: 2 to 60 FEET

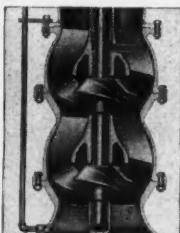
### Rapidly Move and Remove Vast Volumes of Water Against Low and Medium Heads

Highly successful in the efficient handling of large volumes of water, Peerless Mixed Flow Pumps are being applied to process work, condenser service, liquor and chemical circulation, and a variety of industrial services where pumping is desired from open pits, sumps, and surface water sources, such as lakes, rivers, etc., and for large scale dewatering operations.

Peerless has proved the effectiveness of incorporating aero-dynamic streamlining principles to large-volume water lifting, resulting in new conceptions of high efficiencies and lower overall pumping and maintenance costs.

Water turbulence accompanying the usual propeller and vane construction, and normally resulting in excess wear, inefficiency and loss of power, are reduced to the minimum in the Peerless Mixed Flow design.

Cutaway view of Mixed Flow multi-stage pump impeller and bowl construction revealing high-efficiency impellers utilized for more economical water lift.



### Peerless Propeller Type Pumps

Peerless pumps, embodying the Hydro-Foil principle, are available in the propeller type and are capable of handling

identical capacities of the Peerless Mixed Flow pump. Request Bulletin B-148 completely describing the design, construction and application data of these two types of Peerless Pumps, for large-volume water pumping.



### PEERLESS PUMPS

Peerless Pump Div., Food Machinery Corp.  
Factories: Los Angeles 31, Cal.; Quincy, Ill.; Indianapolis, Ind.  
District Offices: Chicago 40 Ill., 4554 No. Broadway;  
Philadelphia Office: Suburban Square, Ardmore, Pa.;  
Atlanta Office: Ruffland Bldg., Decatur, Georgia; Dallas, Tex.;  
Fresno, California; Los Angeles 31, California.

When inquiring specify CP 4156  
— see handy form pages 2-3

## Processing Equipment

spheric pilot with remote off-on control from a suitable pressure or temperature instrument. Manual lighting with high-low automatic instrument control is possible with Type "C" control, while Type "D" provides an atmospheric pilot with high-low or high-low-off automatic control from 1 or 2 instruments.

Optional equipment with "B" and "D" assemblies includes burner block and holder, spark-ignited pilot, pilot solenoid, transformer and flame protection devices. A compact proportional mixing device, the "Mixjector," is heart of the unit. Using air from a constant-pressure blower, it draws gas through a zero governor in required quantity for the selected mixture, supplying the mixture to the burner nozzle. Velocity of flame draws in considerable secondary air which keeps nozzle cool. Shutter on back of burner cage controls secondary air where a heavy draft is available.

Single, easily-locked adjustment sets air/gas ratio, maintaining desired flame characteristics until adjustment is changed. Square-flanged connections permit easy arrangement of individual assembly elements in most desirable position.

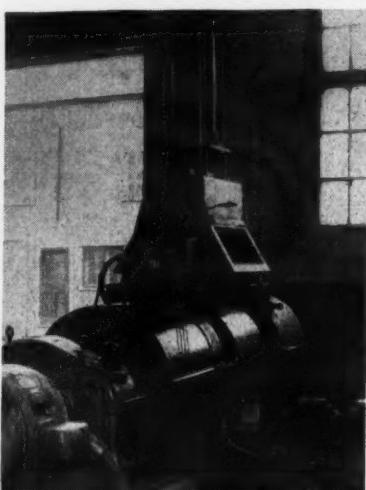
BRYANT HEATER COMPANY, Industrial Division, Dept. CP, 1020 London Rd., Cleveland 10, O.

When inquiring specify CP 4157 — see handy form pages 2-3

### Mixes All Types of Heavy, Tenacious Materials

1-pint to 275-gallon intensive mixers process  
rubber, asphalt, paints, plastics, linoleum

**USES** — Intensive mixer for mixing all types of heavy and tenacious materials. For processing natural and synthetic rubber, asphalt compositions, reclaimed rubber, linoleum, floor tile compositions, paints, a wide range of plastic products, other hard-to-handle materials.



Intensive mixer

**FEATURES** — Mixing chamber is liquid-tight and dust-tight, and it may be easily dumped and cleaned.

**DESCRIPTION** — In working capacities of 1 pt. to 275 gals. Equipped with heating or cooling jackets for ram, trough and blades. Incorporates anti-friction bearings with integral gear unit attached to trough and rotating with it. Metal-to-metal seals. Mixing chamber rotates through 180°.

STRUTHERS WELLS CORPORATION, Dept. CP, Titusville, Pa.

When inquiring specify CP 4158 — see handy form pages 2-3

## ELIMINATE the GUESSWORK from your PULVERIZING PROBLEMS

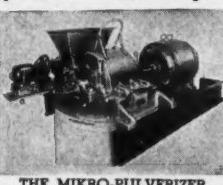
Electron microscope used to determine particle size of sand sample. In low magnification drawings, one of many taken in our laboratory.



When a problem arises in connection with your pulverized material—when you feel your milling costs are too high—when finer grinding is needed—when more uniform particle size or more thorough dispersion will improve your finished product—you need to be sure of performance before you make any investment in equipment or processes.

The answer lies in submitting your problem to our Research Laboratory. Here, and in our Test Grinding Department, every phase of your subject is analyzed scientifically and practically. The exact operating conditions under which your material is to be ground are reproduced in detail. The experience and data gained over 25 years in the making of nearly 55,000 tests on all kinds of materials, is applied to its fullest extent for your benefit.

The resulting report can be your unfailing guide to improved pulverizing operations in your plant . . . a recommendation that provides the *only practical basis* on which to select the proper pulverizing equipment to best meet your needs. It will enable you to know your best operating procedure.



THE MIKRO-PULVERIZER  
For 25 years the leader in producing fine grinds of a large variety of materials.

As a logical first step to obtain these services as applied to your problem without cost or obligation, send today for your copy of Confidential Test Grinding Data Sheet.

25  
YEARS  
SERVING  
INDUSTRY

PULVERIZING MACHINERY COMPANY  
60 CHATHAM ROAD • SUMMIT, N. J.

MIKRO-PULVERIZER  
FINE  
ULTRA FINE  
Reg. U. S. Pat. Off.

Also Makers of the MIKRO-COLLECTOR

When inquiring specify CP 4159 — see handy form pages 2-3

**ALL THREE ARE NATURALS**

**FOR THE CHEMICAL INDUSTRY!**

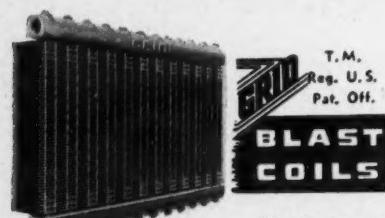
**UNIT HEATERS**

T.M.  
Reg. U.S.  
Pat. Off.

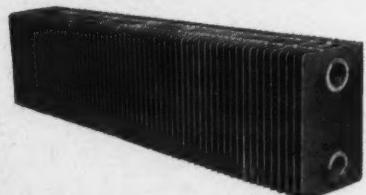
**GRID**

**BLAST COILS**

Here's heating equipment that will stand up under conditions peculiar to chemical industries—engineered, designed and constructed to combat those conditions that make space heating, process work, etc., a continual headache to chemical plant operators. GRID Unit Heaters, GRID Blast Coils and GRID Radiation are "naturals" for your industry—and here's why: More "free" area per foot of heating space in GRID products than any other. Hence, no clogging due to dust, lint, etc. And, easier to keep clean and operate at highest efficiency.



No electrolysis because no dissimilar metals are used in GRID construction. Hence, no maintenance expenses—but years of trouble-free heating service.



tures and greater air delivery. Hence, warm comfortable air to the working zone where it is needed.

Learn the details about GRID products.

**Write**  
today for complete details, capacity tables to  
the story of GRID to

**D. J. MURRAY  
MANUFACTURING CO.  
WAUSAU, WISCONSIN**

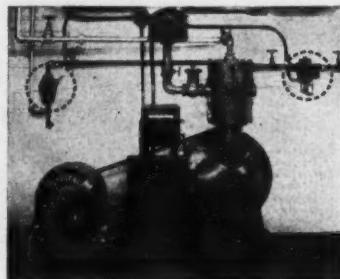
When inquiring specify CP 4160 — see handy form pages 2-3

Page 76

## Processing Equipment

### Automatically Controls Water to Water-Cooled Compressors

Compressor control with direct-operated solenoid valve prevents overheating, waste



Compressor control with solenoid valve at right, electrode holder in discharge at left

**DESCRIPTION** — Valve is heavy-duty, has no auxiliary pistons. It handles temperatures up to 400° F. and in some sizes operates under differential pressures up to 150 lbs. Now used successfully on boiler feed lines and for a variety of automatic flow control uses.

In operation, valve admits water to compressor whenever regulator on storage tank calls for more pressure. Compressor itself is not started until water flows

**USES** — Compressor control equipped with direct-operated solenoid valve for complete automatic control of water supply to water-cooled compressors. Also furnished for use with unloading compressors.

**FEATURES** — Prevents dangerous overheating of compressor and avoids water waste.



### That is Why Sales of SPERRY FILTER BASES HAVE MOUNTED STEADILY

For more than a half century Sperry has specialized in industrial filtration. Designing and developing, for the incredibly diversified types of filtration demanded by modern industry, an enormous variety of filter papers, filter cloths, filter bases of glass, wool, asbestos, vinyon, rubber and woven metals... stainless steel, monel and other materials... as well as special bases to meet unusual requirements.

During those 50 years the demand for Sperry Filter Bases has steadily mounted... indisputable proof of "customer satisfaction."

Sperry is equipped to handle, promptly and efficiently, not only all orders for filter bases, but to analyze your requirements and suggest the exactly right filter bases for your particular operation. Write today... give details about the presses you use and their purpose. We will send you our recommended samples of filter bases and our new economy price list... there is no obligation.

Filter Base Division

**D. R. SPERRY & COMPANY**  
Batavia, Illinois

When inquiring specify CP 4162 — see handy form pages 2-3

**MAKE YOUR OWN GAS**

**FOR ALL OVENS AND FURNACES**

Used in 84 varied industries including metal heat treating and smelting, food processing, ceramics, chemicals, textiles and plastics. No more loss and delay from gas shutoffs or varying pressures. Instant change to and from gas. Greater safety.

**VAPORIZES FUEL OIL**

Does not atomize it. Gives clean, blue flame — no soot or contaminating odors. Constant pressure and fuel-air ratio automatically maintained from oxidizing to reducing flame. Less scale on ferrous work. Quicker and more uniform heat penetration and increased production speed.

**VAPOFIER CORP.**

10314 S. Throop St.  
Chicago 43, Ill.

NAME.....  
ADDRESS.....  
CITY..... STATE.....

When inquiring specify CP 4161 — see handy form pages 2-3



### FITTINGS ARE SCARCE

#### SAVE 7 PER TRAP WITH SUPER-SILVERTOPS

You might say pipe fittings are as hard to find as "needles in a haystack"—that's why saving them with Super-Silvertop Steam Traps is really important. You save seven to nine fittings with every Super-Silvertop you install. This is possible because you don't need a U-tube of fittings tailor-made for each trap. In Super-Silvertop, the U-tube is built-in— included at no extra cost. That saves as much as 60 minutes of installation time per trap as well as scarce fittings.

If you want a dependable trap that gives trouble-free service for years, and also want to save scarce fittings—investigate Anderson Super-Silvertops. This is a full line of traps, with simplified piping in every size. Complete details in the helpful book, "How To Choose A Steam Trap." Write today for your free copy.



Super-Silvertop showing one nipple and one union needed.



Conventional trap using seven fittings and two unions.

**THE V. D. ANDERSON CO.**  
1954 West 96th St., Cleveland 2, Ohio

When inquiring specify CP 4163 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Processing Equipment

through compressor, completing an electric circuit with an electrode mounted in holder on discharge line. If water fails to flow, compressor will not start, or if operating, stops immediately. When receiver is satisfied, compressor is stopped and solenoid valve shuts water off at once.

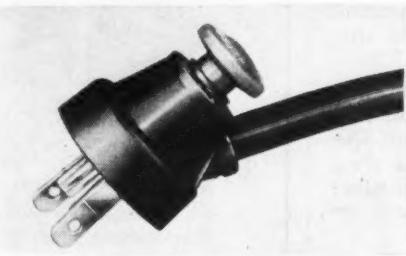
Illustration shows electrode holder mounted in discharge at left, solenoid valve at right.

JOHNSON CORPORATION, Dept. CP, Three Rivers, Mich.

When inquiring specify CP 4164—see handy form pages 2-3

### Electrical Plugs Lock Into Standard Outlets in Jiffy

Assure good contact, even in worn outlets; finger-tip locks, unlocks plunger



Locking electrical plug

USES — Locking electrical plugs for use in any standard outlet. For factory installation on electrical products.

FEATURES — Locks securely, forming positive contact even in badly worn receptacles. Locks or unlocks in one motion, without twisting or turning. Quickly assembled, disassembled or substituted for conventional plugs. No exposed metal parts. Approved by Underwriters' Laboratories. Convenient. Requires no special receptacle or attachment. Oil and sun resistant. Crack and crush-proof.

DESCRIPTION — Slight finger-tip pressure on plunger attached to sliding wedge forces prongs tightly against contacts of receptacle, locking plug in place. To remove, pull out plunger. Incorporates strain relief. Ruggedly constructed of Neoprene in any standard color. Available in various numbers of conductors.

NEOLINE, INC., Dept. CP, 130 S. Hewitt St., Los Angeles 12, Calif.

When inquiring specify CP 4165—see handy form pages 2-3

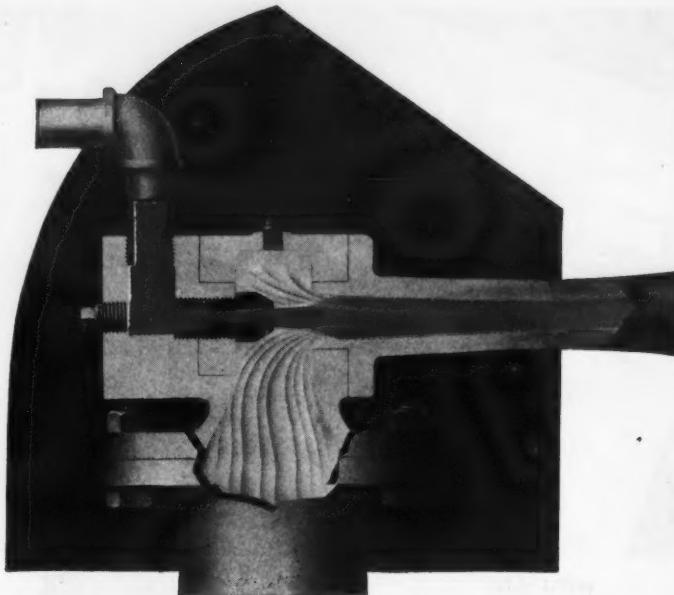
### Tape Is Both Friction Tape and Splicing Compound; 1 Layer Insulates 220 Volts

"Two-in-One Tape" which weatherseals electrical splices in one operation, also friction tape and splicing compounds, are described in a 4-page catalog section. Literature describes materials and construction methods used in making these products. Some uses are outlined. A single layer of the Two-in-One-tape is said to provide adequate insulation for lines carrying up to 220 volts; double layer, 650 volts. Catalog Section 9270.

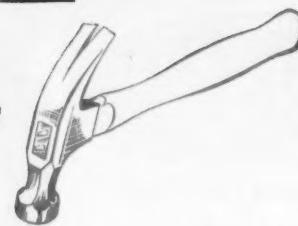
THE B. F. GOODRICH COMPANY, Dept. CP, Akron, O.

When inquiring specify CP 4166—see handy form pages 2-3

and "reason why"



### no more complicated than a hammer



A hammer is a simple, functional tool.

It has nothing to get out of order.

Jet Pumps are similar to a hammer.

They have no moving parts to get out of order.

They have no glands to adjust or replace . . .

No bearings, no rotating or reciprocating parts to wear.

They lift or transfer liquids or solids . . .

Exhaust liquids from tanks . . .

Produce vacuum or pressure . . .

Mix and agitate liquids . . .

Mix gases . . .

And perform many other functions . . .

SIMPLY !

Assure yourself efficient operation.

Eliminate "down time" and maintenance.

Reduce your costs.

Send, today, for Bulletin J-1.

Find out how *Jet Pumps* can work for you.



SCHUTTE & KOERTING COMPANY

Manufacturing Engineers

1173 THOMPSON STREET • PHILADELPHIA 22, PA.

JET APPARATUS • HEAT TRANSFER EQUIPMENT • STRAINERS • CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIPMENT • ROTAMETERS AND FLOW INDICATORS RADIAFIN TUBES • VALVES • SPRAY NOZZLES AND ATOMIZERS • GEAR PUMPS

When inquiring specify CP 4167 . . . see information request blank, pgs. 2-3

# STOP FIRE FASTER

WITH AN



DRY CHEMICAL

## FIRE EXTINGUISHER

● FASTER fire-stopping power is your first requirement when fire breaks out... and Ansul Dry Chemical Fire Extinguishers give you that extra margin of protection against major fire damage.

● In addition, you get GREATER fire-stopping power... because Ansul Plus-Fifty Dry Chemical releases its flame smothering gases in the heart of the flames.

● For fires in flammable liquids and in electrical equipment, Ansul Dry Chemical Fire Extinguishers provide greater protection... pound for pound and dollar for dollar than any other extinguisher.



Get the facts. Ask for authoritative comparative ratings as determined by a national approval agency.

MADE BY THE MANUFACTURERS OF ANSUL DRY CHEMICAL FIRE EXTINGUISHERS, MODELS 4, 20, 30, 150-A AND 350-A.

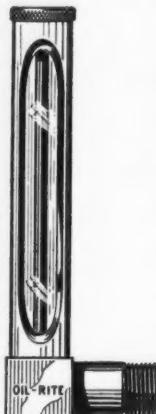
**ANSUL CHEMICAL COMPANY**  
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN

When inquiring specify CP 4168—see handy form pages 2-3

## Processing Equipment

### Compact Elbow Oil Gauge Fits Small Clearances

Construction permits adjustment, removal of revolving shield during operation



Elbow oil gauge

USES — Elbow oil gauges for indicating oil level where assembly clearances are small, or where high temperatures make manufacturer's plastic gauges unsuitable.

For applications such as bearings, gear boxes, crank cases, transformers, switches, etc.

FEATURES — Easily installed where clearances are insufficient for a 1-piece gauge. Readily dismantled. Reduces to minimum the possibility of dust and dirt entering gauge. Permits adjustment or removal of revolvable shield after installation without disturbing oil level.

DESCRIPTION — Constructed with protected glass sights in standard sizes with short and long elbow lengths. Special lengths and heights, also drain plugs or other special features, where body can be mounted and gauge reassembled.

Consists of 2 assemblies: functional and protective. Former includes brass body, central stem and top cap nut which supports glass sight between 2 cork gaskets. Protective assembly has shield and knurled cap nut screwed on central stem, locking shield and spacing it safely from glass. This construction permits adjustment or removal of shield while gauge is operating.

When knurled cap screw is loosened, shield can be revolved to most convenient position for viewing or removal to clean. Vent hole in inner cap nut admits air to communicate with outside through clearances of shield and sight.

OIL-RITE CORPORATION, Dept. CP, 3461 S. 13th St., Milwaukee 7, Wis.

When inquiring specify CP 4169—see handy form pages 2-3



### Compact Steam Trap Rates 960 lbs. Condensate per hr., 60 psi

Suspends in horizontal pipe-run without other support; can be used as "elbow" in line

USES — "Cub-Junior" steam trap for unit trapping installations draining steam-heated equipment in processing plants. For suspension in a horizontal run of pipe without other support, also for use as an "elbow" in line.

Tests demonstrate high efficiency on all cases of general service, and pilot installations verify test results, manufacturer reports.

FEATURES — Small in size, but with comparatively large capacity. Because it reduces air as well as condensate, use of this unit is said to result in less sluggish operation of steam-heated equipment.

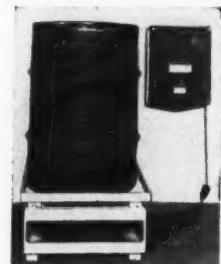
DESCRIPTION — Over-all size, 3 1/4 x 5 1/2". Handles

For Effective Packing and Settling!

**SYNTRON**

ELECTRIC

**VIBRATORY  
PACKERS**



3,600 vibrations per minute — rheostat controlled power for variable adjustment to meet material requirements.

Capacity from large barrels to small containers.

"EXPLOSION-PROOF"

**HYDRAULIC  
JOLTORS**



Short, sharp jolts are particularly effective on packing light, fine, fluffy materials.

For general use in hazardous locations — water, air or oil operated.

Write us about your problem.

**SYNTRON CO.**

110 Lexington, Homer City, Pa.

When inquiring specify CP 4170  
— see handy form pages 2-3

## Processing Equipment

up to 2000 lbs. of condensate per hr. on continuous discharge. Rating at 60 psi is 960 lbs. of condensate per hr. Light weight permits suspension in horizontal pipe-run without other support; and 2 inlet connections at right angles to each other facilitate use as an "elbow."

Screwed inlet and outlet connections furnished in 2 sizes:  $\frac{1}{2}$  and  $\frac{3}{4}$ " IPS. Rapid surge of condensate through trap while discharging usually keeps trap clean indefinitely. However, blow-off connection provides for removal of particles too large for expulsion through condensate orifice.

Valves are accessible through outside connection, may be changed for various pressures without other adjustments. Valves and seats are interchangeable in full range of "Cub" sizes within common pressure range. Maximum pressure recommended by manufacturer: 125 psi. For inspection, trap body can be unbolted and removed without disturbing pipe connections, exposing internal parts for examination.

WRIGHT-AUSTIN COMPANY, Dept. CP, 315 W. Woodbridge St., Detroit 26, Mich.

When inquiring specify CP 4171 — see handy form pages 2-3

### Seals Corrosive Pipe Leaks Up to 4" diam., 800 psi

*Stainless steel clamp and patch plate, oil-resistant pad, may be used, re-used*

USES — All-purpose pipe-leak clamp for stopping leaks on low or high pressure pipe ranging from  $\frac{1}{2}$  to 4" diameters. Useful where corrosion is a factor, and wherever liquids are conveyed by pipes or tubes at high pressures.

FEATURES — Tested at 800 psi without leaking, manufacturer reports. Can be used and re-used without efficiency loss. Simplicity of design plus ease of application.

DESCRIPTION — Four sizes handle all pipe diameters up to 4". One clamp fits any pipe size up to maximum diameter of clamp. Unit consists of corrosion-resistant, stainless steel clamp and specially designed patch plate



All-purpose pipe-leak clamp

of stainless steel annealed sheet which forms naturally to pipe contour, plus an oil-resistant pad. Installed and tightened, pressure is brought against pipe, sealing leak.

MARMAN PRODUCTS COMPANY, INC., Dept. CP, 940 W. Redondo Blvd., Inglewood, Calif.

When inquiring specify CP 4172 — see handy form pages 2-3

FEBRUARY, 1948

## STEAM at Your Finger-Tip?



This is a size A-125 — 125 h.p. AMESTEAM Generator equipped for burning light oil.

### AMESTEAM GENERATOR

**Y**OU enjoy true "pushbutton" control with the AMESTEAM Generator—the completely automatic, self-contained packaged steam unit with 80% operating efficiency.

AMESTEAM Generators require a minimum of supervision, no labor for fuel handling or ash removal, and no banked-fire periods. You start operation with a pushbutton, and the unit delivers full steam pressure in a few minutes.

Available in sixteen sizes from 10 to 300 h.p., and in pressures from 15 to 200#, AMESTEAM units may be provided to burn heavy or light oil, or gas or may be provided with both oil and gas burners for your advantage in situations of fluctuating fuel supply and cost.

Installation of the AMESTEAM Generator is also simple. No foundation or brick setting is necessary. Connect the AMESTEAM Generator to your steam, water, fuel and electric lines and you are ready to go. No large stack is needed, just a vent to the outside. All control and safety mechanisms

are built in and ready to operate. Every standard AMESTEAM Generator includes condensate unit complete with feed water pump and condensate tank.

If you are handicapped by insufficient steam capacity, obsolete boiler equipment, fuel difficulties or labor shortage, you may find an AMESTEAM Generator to be your answer. Write today for specific information on a generator for your needs, or for general bulletin describing all sizes.

<b>AMES IRON WORKS</b> BOX 602 OSWEGO, NEW YORK  <i>May I hear more about the AMESTEAM Generators? Please send bulletin.</i>	<input type="text"/> Name..... <input type="text"/> Company..... <input type="text"/> Address..... <input type="text"/> Type of Business..... <input type="text"/> Estimated Capacity Needed..... 
--	--

**AMES IRON WORKS** Oswego, N.Y.

When inquiring specify CP 4173 . . . see information request blank, pgs. 2-3

## Processing Equipment

### LEAF PROCESSING

... a vital step in producing fine smoking tobacco

Wherever leaf processing is on a production basis . . . or wherever interlaced fibrous materials must be torn apart . . . consider this machine. Its special purpose design, its intermeshing, serrated knives may mean new and unexpected profits to your industry too.

In the tobacco industry, stripping the leaf from the stem was considered for years a time-consuming, hand operation. But no longer! Today, leaf processors count on the Sprout-Waldron unit shown below to do the job better and faster. The machine's sturdy thresher-action speeds production with a minimum of fines at tremendous labor savings.



Just state your individual problem. If you mix one material with another . . . reduce its size . . . separate one particle size from another . . . or handle material in bulk, you may realize considerable savings by consulting Sprout-Waldron. Our valuable ADAPTATIONNEERING service — ingenuity + machines + experience — is at your command. Sprout-Waldron & Company, Muncy, Pennsylvania.



When inquiring specify CP 4174 . . . see information request blank, pgs. 2-3

Case Permits Orderly, Compact Moving of Cutting, Welding Tools

Sturdy 22 x 8 x 9" steel box holds torch, tips, regulators, hose, gloves, goggles, wrenches



USES — Carrying case for transporting a welding or cutting outfit including torch, tips, regulators, hose, gloves, goggles, wrenches and miscellaneous equipment.

FEATURES — Permits compact, orderly transportation of tools and equipment.

DESCRIPTION — Dimensions are 22" long, 8" wide, 9" deep.

Weight, 10½ lbs. Constructed of 22-gauge cold rolled steel with flush double-lock seams. Reinforced ends and cover especially panelled for strength, rigidity. Ripple baked enamel exterior; handle-equipped lift-off tray; padlock hasp and extra-heavy duty bolt catches.

AIR REDUCTION SALES COMPANY, Dept. CP, Dept. 1558P, 60 E. 42nd St., New York 17, N. Y.

When inquiring specify CP 4175 — see handy form, pages 2-3



### Process Equipment Catalog Covers Dryers, Distillers, Condensers, Heat Exchangers

A 16-page catalog of processing equipment describes and illustrates spray and multi-stage dryers; drying and evaporating systems; distillation equipment; heat exchangers; a rotary unit for evaporation, crystallization and drying in one continuous operation; counter-current and multi-jet barometric condensers; solvent recovery units and vitamin extraction plants. A process for butyl alcohol distillation is also mentioned. Title: "The Successful Combination in Process Plant Equipment."

ACME COPPERSMITHING & MACHINE COMPANY, Dept. CP, Oreland, Pa.

When inquiring specify CP 4176 — see handy form pages 2-3



### Tells Story of Stainless Steel Castings, Their Manufacture and Uses

Stainless steel casting from 1 oz. to 2 tons, how they are made, and how they are used, is the story told in a 44-page, 7 x 10" booklet. Tables are devoted to analyses, characteristics and applications of standard alloys, also their corrosive and heat uses. A brief history of the manufacturer is included. Fully illustrated. Title: "A Quarter Century of Pioneering in Stainless Steel Castings."

THE COOPER ALLOY FOUNDRY COMPANY, Dept. CP, Hillside, N. J.

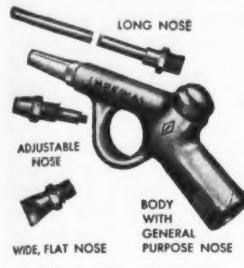
When inquiring specify CP 4177 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## Processing Equipment

### 4-Nose Air Nozzle Cleans Recesses, Lines, Surfaces

*Light-weight, heavy-duty unit has  $\frac{1}{4}$ " female thread; noses are separate or in sets*



Air nozzle and noses

**USES** — Heavy-duty air nozzle with one, two, three or four interchangeable noses for multi-purpose factory use.

For machine and repair shops, forging plants, steel mills and foundries, plants in general.

**FEATURES** — Combines high strength with light weight and ease of handling. Versatile.

**DESCRIPTION** — Four available noses include: 1) general purpose; 2) a long unit which can be bent for getting into recesses and pockets; 3) an adjustable unit for high pressure lines or where air blast must be controlled; 4) a wide, flat nose for broad surfaces. Available separately or in a complete set.

Of heat-treated duraluminum forging with pistol grip and convenient loop for hanging. Instantly accessible, streamlined operating button at top is protected from damage. Neoprene washer withstands air-borne oils and acids. Self-cleaning seat.  $\frac{1}{4}$ " female pipe thread. Bulletin 353.

THE IMPERIAL BRASS MFG. COMPANY, Dept. CP, 1200 W. Harrison St., Chicago 7, Ill.

When inquiring specify CP 4178 — see handy form pages 2-3



### Machine Cleans, Polishes Rubber Rollers On Production Basis

4-page bulletin shows, describes a special-purpose machine for use by paper mills and manufacturers of rubber rollers. Unit is a regular 19" lathe with special turning facilities for grinding, buffing and polishing. It is also useful for standard engine lathe purposes. Cleans and polishes rollers on a production basis. Literature covers uses, operation and equipment. Title: "The Take-Off that Pays Off."

THE R. K. LEBLOND MACHINE TOOL COMPANY, Dept. CP, Cincinnati 8, O.

When inquiring specify CP 4179 — see handy form pages 2-3



### Offers 1947 Classified Directory of Consulting Chemists, Chemical Engineers

1947 Classified Directory of Association of Consulting Chemists and Chemical Engineers is available on request. 120 pages, it lists "specializing" and "qualified" services performed by members, provides 1-page descriptive statements concerning qualifications, scope, functions and activities of members' organizations, and alphabetical and geographical membership lists.

ASSOCIATION OF CONSULTING CHEMISTS AND CHEMICAL ENGINEERS, INC., Dept. CP, 50 E. 41st St., New York 17, N. Y.

When inquiring specify CP 4180 — see handy form pages 2-3

FEBRUARY, 1948



## BS & B VENT VALVES

Here's positive protection against vapor loss when storing benzol, alcohol, gasoline and other products requiring slight pressure for economical storage. Black, Sivalls & Bryson Vent Valves guard against both over-pressure and excessive vacuum. An exclusive, flexible gasket provides a tight seal during normal operations. Over-pressure lifts the hinged cover, breaks the seal, allows vapors to escape until normal pressure is restored. Excessive vacuum causes atmospheric pressure to lift the gasket, permitting in-breathing.

B S & B Vent Valves are available in a full-range of sizes . . . 2 to 24 inches. Standard models have cast iron body and cast aluminum cover; B S & B Vent Valves are also available in bronze, monel, stainless or combinations of these metals. Large Vent Valves also may be used as manhole openings. Many are in use as supplementary relief valves.

Write today for complete information. Address Special Products Division, Black, Sivalls & Bryson, Power and Light Building, Kansas City 6, Missouri.

SPECIFICATIONS				
Model Number	Size, inches	Standard Opening Pressure, Ounces	Maximum Opening Pressure, Ounces	Standard Opening Vacuum, Ounces
ZVVA	2	3	16	$\frac{1}{2}$
3VVA	3	3	16	$\frac{1}{2}$
4VVA	4	2	16	$\frac{1}{2}$
6VVA	6	2	16	$\frac{1}{2}$
8VVA	8	2	16	$\frac{1}{2}$
10VVA	10	2	16	$\frac{1}{2}$
12VVA	12	2	16	$\frac{1}{2}$
16VVA	16	2	8	$\frac{1}{2}$
20VVA	20	2	6	$\frac{1}{2}$
24VVA	24	$\frac{1}{2}$	4	$\frac{1}{2}$

EFFICIENCY  
BLACK, SIVALLS & BRYSON, INC.  
KANSAS CITY, MO. RELIABILITY OKLAHOMA CITY, OKLA.

When inquiring specify CP 4181 . . . see information request blank, pgs. 2-3

## Processing Equipment

### 30-Gal. All-Aluminum Drums Cut Shipping, Maintenance Costs

Weigh only 34 lbs. apiece; tested for more than 285 chemicals, oils, paints, lacquers

**USES** — All-aluminum chemical drums for transporting and storing a wide range of materials including pharmaceuticals; chemicals such as glacial acetic acid, nitric acid (80% and higher), benzine, ether, also vegetable, animal and mineral oils, paints, enamels, laquers and varnishes, under most conditions.

Designed specifically for shipping hydrogen peroxide, but manufacturer lists more than 285 materials for which these drums are suitable, and advises conducting tests on individual products where application has not previously been definitely determined.



All-aluminum chemical drum

**FEATURES** — Made of high purity (99.6%) aluminum, which does not react with many chemicals, and is not affected by them. Meets Interstate Commerce specifications 42D, while similar drums of slightly varied design and allow content are available to meet ICC specifications 42B and 42C.

Weighs approximately half as much as a similar steel drum, a saving which is reflected in shipping costs. Manufacturer quotes the following examples:

"1) A typical chemical weighing 12.4 lbs per gal. weighs 404 lbs. per drum in aluminum, 441 in steel; or 181,100 lbs. per carload in aluminum, 198,450 lbs. per carload in steel. At 54¢ per 100 lbs., this difference in weight saves \$89.91 per car on a typical shipment from Buffalo to Louisville.

"2) Returning empty from this same haul, a carload of aluminum drums weighing 14,400 lbs. at 78¢ per 100 lbs. costs \$156 while a car of steel drums weighing 31,050 lbs. at 63¢ would cost \$195.62, a saving of \$39.62 per car."

Savings on original cost, shipping expenses and main-

CHEMICAL PROCESSING Preview



Above left — Armstrong bottom inlet-top outlet series trap.  
Above right — Armstrong No. 800 side inlet-side outlet trap.

### PROOF THAT ARMSTRONG TRAPS PAY DIVIDENDS:

HEATING-UP TIME REDUCED 20%, FUEL CONSUMPTION 10% and MAINTENANCE COSTS 75% when manufacturer unit trapped 20 steam jacketed kettles with Armstrongs. — Griggs, Cooper Co., St. Paul, Minn.

20% FUEL SAVINGS and 80% MAINTENANCE REDUCTION with use of Armstrong Traps. — Eastern Box Co., Baltimore, Md.

MAINTENANCE, FUEL and HEATING-UP TIME SAVED by trapping with Armstrongs. — Eagle Rubber Co., Ashland, Ohio.

MAINTENANCE REDUCED 50% by installing Armstrong Traps. — Defender Photo Supply Co., Rochester, New York.

### For Fuel Savings and Maximum Production INSTALL AN INDIVIDUAL ARMSTRONG STEAM TRAP ON EACH UNIT



**WHY UNIT TRAPPING IS ESSENTIAL:** If you try to drain condensate from more than one steam-consuming unit with the same trap, sluggish heating and low temperatures will almost always result. This is because no two units condense steam at the same rate. The pressure will be lowest in the unit condensing steam the fastest. Condensate from the higher pressure unit will back up into the lower pressure unit (or close the check valve), temporarily blocking off its drainage. This prevents escape of air and condensate, lowers the machine temperature and wastes fuel. However, the use of a separate trap on each unit permits individual operation without any effect from different condensing rates. You get maximum temperatures and maximum production.

**WHY ARMSTRONGS ARE BEST FOR UNIT TRAPPING:** They not only discharge condensate as fast as it accumulates, but they discharge air as well. This is essential to fast heating and uniform high temperatures. Furthermore, you don't have to be afraid of increasing the number of traps in your plant because Armstrongs seldom need attention. They won't clog or stick; dirt is swirled right through; the chrome steel valve and seat and corrosion-resistant stainless interior stand up in constant service for years and years.

THE ARMSTRONG STEAM TRAP BOOK gives complete data necessary for selection, installation and maintenance of Armstrong traps. Send for a copy.

### ARMSTRONG MACHINE WORKS

880 Maple Street • Three Rivers, Michigan

### ARMSTRONG Inverted Bucket STEAM TRAPS

No. 3 of a series of advertisements devoted to improving efficiency through better trapping.



When inquiring specify CP 4182 . . . see information request blank, pgs. 2-3

## Processing Equipment

Cut  
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porting  
harmonic acid  
animal  
tarnishes,  
roxide,  
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has not

tencance are also reported in the cases of materials that might otherwise require shipment in glass carboys, glass-lined steel drums or special containers of stainless steel, monel, etc.

**DESCRIPTION** — 30-gal. all-aluminum drum. Weight, 34 lbs. Height, 30-1/2". Outside diameter, 18", not including reinforcing rings which are 1-1/2" high, adding 3" to make overall diameter 21".

Deep drawn halves employ self-reinforcing design. Each shell is drawn from high purity aluminum stock 0.114" thick. Minimum wall thickness after drawing, 0.102". The two drawn halves are joined by a circumferential seam weld made on Heliarc automatic equipment. Chime rings at top and bottom add strength, absorb wear, prevent denting and distortion. These are high strength aluminum sections, extruded or roll formed.

Extruded sections are 1-1/8" high, 1/8" thick on narrow portion tack welded to outer shell surface. Bulb section is 3/8" deep, 5/8" wide. Roll formed sections are 1-1/8" high, 1/8" thick. Rolling rings are strong alloy (R361). Strip 0.128" thick passes through roller dies on continuous roll-forming machine to give desired section shape. They are coiled to fit the drum at same time.

Individual rings are cut from coil, butt welded and fastened to drum by a series of 14 three-inch long weld beads positioned alternately on each side of ring. Top and side fittings are also welded in place. Drums are individually pressure-tested and receive chemical dip finish.

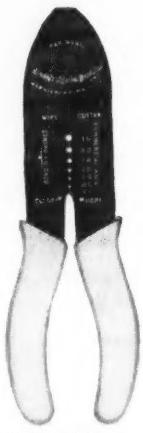
Top end of drum is fitted with top bung and cap. For hydrogen peroxide, user applies neoprene gasket with slit designed to release pressure more than 7 psi above atmospheric pressure. Side bung with 2" opening is also provided.

REYNOLDS METALS COMPANY, Dept. CP, Louisville 1, Ky.

When inquiring specify CP 4183 — see handy form pages 2-3

### Cuts, Strips Wire Sizes 22-10

Combination tool incorporates wire cutter, serrated plier jaws, stud and wire gauge



Wire stripper-cutter

**USES** — Combination wire stripper and wire cutter. For wire sizes 22 to 10.

**FEATURES** — Pocket-size. Eliminates the necessity for carrying one or more additional tools. Easily located if misplaced, due to bright, shockproof handle.

**DESCRIPTION** — This tool incorporates a built-in wire cutter, serrated plier jaws and a handy stud size gauge. The accurately-sized stripping notches also serve as a convenient wire size gauge.

Known as AMP "Yellow Jacket" because of its distinctively-colored, shockproof, plastic handles.

AIRCRAFT-MARINE PRODUCTS INC., Dept. CP, 1559 N. 4th St., Harrisburg, Pa.

When inquiring specify CP 4184 — see handy form pages 2-3

FEBRUARY, 1948

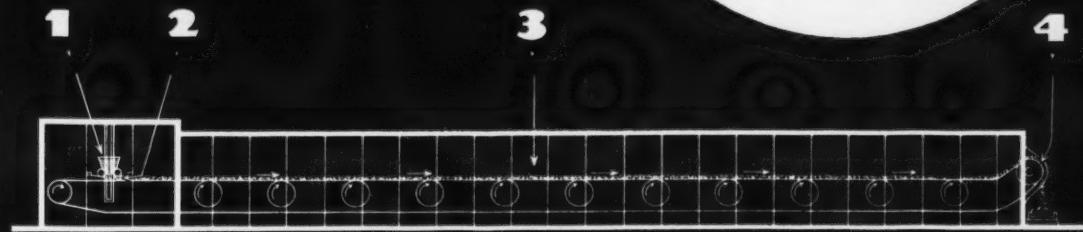
## RUBBER ACCELERATOR

DRIED TO MOISTURE CONTENT OF  
0.3% (B.D.W.B.\* ) AT RATE OF 1200  
POUNDS PER HOUR IN

\*Bone Dry Weight Basis

# PROCTOR

### CONTINUOUS CONVEYOR SYSTEM



In one typical installation of a Proctor continuous conveyor dryer combined with a pre-forming feed, a rubber accelerator is being dried absolutely uniformly and at a high hourly rate. In handling this product in the Proctor system here is what takes place:

① Material is mechanically dewatered by means of a continuous filter, the product is deposited into the hopper of the Proctor rolling extruder feed with a moisture content of 184% (B.D.W.B.). ② Coming to the feed in this state, the material is forced through a perforated plate by rolls moving back and forth, and deposited onto the conveyor of the dryer in spaghetti-like extrusions. This particular feed was recommended for this application because the physical characteristics of the product were such that it would hold a definite shape after extrusion. ③ Loaded to a uniform depth on the moving conveyor, the product is conveyed through the drying chambers, where heated air is circulated through the bed of material on the conveyor. Temperatures are 230° F. in the first zone; 250° F. in the second, and reduced to 230° F. in the final zones. Having been reduced to small, uniformly thick shapes, it is possible for rapid diffusion to take place, which results in more rapid and uniform drying of the finished product. ④ After 101.5

minutes of drying time, the rubber accelerator, uniformly dried to a moisture content of 0.3% (B.D.W.B.) is discharged from the dryer at the rate of 1200 pounds (C.D.W.†) per hour.

This installation is but one of many individually designed Proctor drying systems—each for specific product and output requirements. Only after careful research and study will Proctor engineers make recommendations on a system for any particular application. Once these recommendations are made, however, you have the assurance—written into the sales contract—that the system will meet your needs in every detail. That is why it pays not only to consult Proctor engineers—but to consult them early in your consideration of a drying system. If you have a problem in the drying of a wet solid, write us about it today.

†Commercial Dry Weight

### New Proctor Booklet on Case Histories

If you have not already reviewed the latest Proctor booklet on wet solid drying—write for your copy of "11 Chemical Drying Problems Solved By Proctor Research." You'll find it informative and rather conclusive evidence to support our advice that you consider drying problems carefully—and early.



Proctor & Schwartz, Inc.

Philadelphia 20, Pa.

When inquiring specify CP 4185 . . . see information request blank, pgs. 2-3

**Save  
TIME  
and  
LABOR**

## ALSOP "Hy-Speed" MIXERS AND FILTERS for all liquids



### "Hy-Speed" Portable Mixers

Designed to meet your mixing and blending requirements on all liquids — based on 25 years mixing experience, the Alsop "Hy-Speed" Portable Mixer provides dependable, accurate and economical service that needs no supervision. Simply mount it to your present tank, its special clamp provides easy adjustment for any mixing action and makes every tank a mixing tank.

### Compact "Sealed-Disc" Filters

Provide positive filtration at all times with low operating, cleaning and maintenance cost. These unique filters are air-tight and leak-proof, recommended for intermittent or continuous operation on chemicals, liquid plastics, plating solutions, alcohol, acids, drugs, syrups, water etc. Available in Stainless Steel, Monel, Nickel Plated Brass and Bronze, in sizes from 1 g.p.m. to thousands of g.p.h.

Write for catalog No. 745 showing our complete line of Top Entering type Mixers and Fixed Side-Entering Agitators. The Alsop Engineering Corporation, 302 Alsop Square, Milldale, Connecticut.

## ALSOP ENGINEERING CORPORATION

Filters, Filter Discs, Pumps, Tanks, Mixers, Agitators

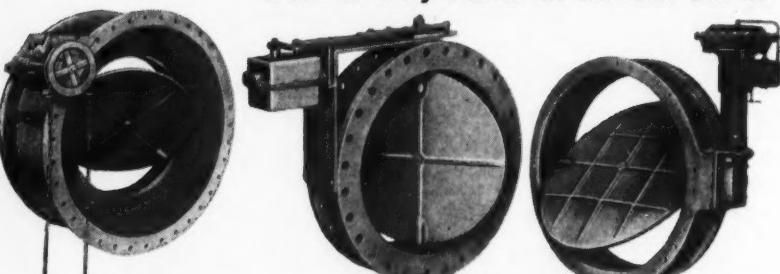
When inquiring specify CP 4186 — see handy form pages 2-3

### ROCKWELL ANNOUNCES

## THESE BIG NEW VALVES FOR BETTER CONTROL AND QUICK SHUT-OFF OF AIR-GASES-FLUIDS

Pipe Sizes to 72"

Built of Any Metal or Rubber Lined



Chain wheel operated, stainless steel butterfly valve for 42" pipe line, but with 30" diameter blade for corrosive gas at high temperature.

These are typical of many Rockwell Valve types for easy convenient handling of gas or air for combustion, chemical gases and fluids, flue gas, fly ash, etc., under normal or unusual operating conditions. Write for new catalog.

## ROCKWELL BUTTERFLY VALVES

W. S. ROCKWELL COMPANY • 220 Eliot St., Fairfield, Conn.

When inquiring specify CP 4187 — see handy form pages 2-3

Page 84

### Processing Equipment

#### Flick of Finger Sets Automatic Code Dater

Self-inking device imprints wax paper, cellophane, paperboard



Automatic code dater

USES — Automatic package marking machine for code dating wax paper, cellophane and ordinary paperboard.

For attachment vertically, horizontally or upside-down to any conveyor, wrapping machine, carton forming machine, etc., marking boxes on top, side or bottom, as required by the user.

FEATURES — Newly developed numbering wheel and inking roller provides complete range of letters and numerals which can be set instantly to any desired printing combination.

Eliminates need of looking for type, taking apart and resetting the imprint. Quickly installed, requiring no additional space or alteration of equipment. Versatile.

DESCRIPTION — Numbering wheel has the printing numerals and letters mounted on a series of variable adjustable reels, similar to standard adjustable office stamps. Reels are built directly into numbering wheel disc. Thus, a simple flick of finger changes date or code without delay.

Ink roller automatically re-inks type, holding sufficient ink to date or code 20,000 to 50,000 packages. If desired, different colored ink or rollers may be used.

Durably constructed with chrome-plated finish. Available in a wide range of models.

ACRO TOOL and DIE WORKS, Dept. CP, 4550 Broadway, Chicago 40, Ill.

When inquiring specify CP 4188  
— see handy form pages 2-3

#### A Few of the Things SPENCER VACUUM Can Do in Your Plant

##### Clean -

FLOORS, WALLS  
STRUCTURES, OFFICES

##### Aid Production -

BENCH WORK, REMOVE  
CHIPS, CLEAN WORK  
RECLAIM MATERIALS

##### Clean -

BOILER TUBES  
MACHINERY, STOCK ROOM  
BOX CARS

Any special problem you have has probably been solved by Spencer in some other plant. Our representative in your vicinity can tell you how.



333H

**SPENCER VACUUM**  
HARTFORD CLEANING  
THE SPENCER TURBINE COMPANY, HARTFORD 6, CONN.

When inquiring specify CP 4189 — see handy form pages 2-3

### Pritchard Small and Medium

## COOLING TOWERS

Shipped from Stock

### INDUCED DRAFT...

Horizontal or vertical air flow, with ultra-efficient Moore "Lifetime" Fan.

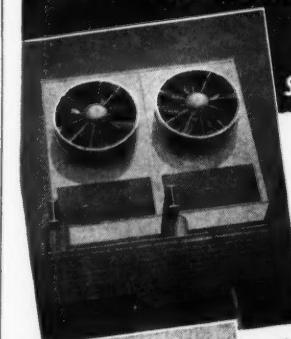
No gears, no belts, no couplings, no corrosion problems. Heavy-duty All-Monel pressure blowers, trouble-free under most severe conditions. Slow-speed, ball bearing, direct drive motor in the hub. Other advanced and thoroughly proved mechanical and structural features throughout.

### NATURAL DRAFT...

Standard spray towers or coil systems in base, with or without basins or internal decks. Low pressure water distribution. Bolted assembly of Redwood or All-Metal, shipped complete.

ALSO ALL OTHER TYPES AND SIZES: 20 YEARS OF COOLING TOWER LEADERSHIP

For further information see Sweet's Files, Chemical Engineering Catalog, ASH & VE Guide, etc.



**J.P. Pritchard & Co.**  
ENGINEERS • CONSTRUCTORS • MANUFACTURERS  
FACILITY BUILDING, KANSAS CITY 6, MISSOURI

When inquiring specify CP 4190 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

## BW AND COPYFLEX PRINTER — Duplicates Anything Drawn-Typed- Printed-Illustrated

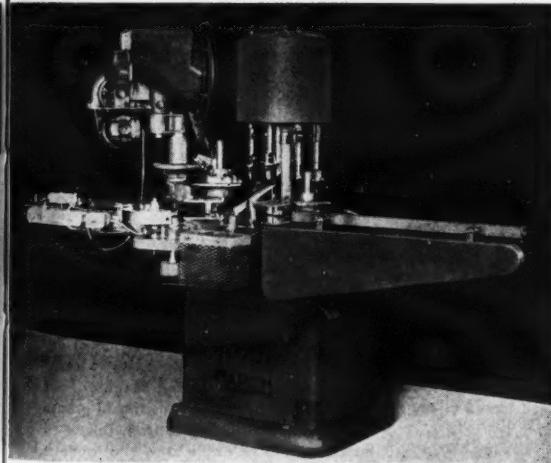
This Bruning Model 2 BW and Copyflex Continuous Printer, shown on stand with Model 153M BW developing machine, provides a convenient means for making Bruning BW direct line process prints from any translucent or transparent original material. The machine can be set up anywhere in your drafting room or office — requires no plumbing or provision for exhaust fumes. At the flick of a switch, the Model 2 Printer also exposes



Copyflex photographic prints of anything typed, printed, illustrated or drawn. Opaque original material with copy on both sides can be reproduced from one or both sides. Copyflex prints are developed with three trays and a simple drier (readily available). For full information, write Charles Bruning Company, Inc., 4706-20 Montrose Avenue, Chicago 41, Illinois.

### BRUNING Since 1897

When inquiring specify CP 4191 — see handy form pages 2-3



### CAPEM . . . APPLIES ANY SCREW-CAP AT 2,000 TO 10,000 AN HOUR . . . DELIVERS A LEAK- PROOF SEAL . . . AT LOW COST

Available in 1, 2, 4, 6 and 8 spindle models

Write for prices

**CONSOLIDATED PACKAGING MACHINERY CORP.**  
BUFFALO 13, N.Y.

When inquiring specify CP 4192 — see handy form pages 2-3

FEBRUARY, 1948

## Processing Equipment

### Join Porous Stainless Steel; Form Large Filter Media Sheets

Butt welding technique used on material 0.100" or more thick

**USES** — For applications where stainless, sanitary, resistant properties are required.

**FEATURES** — By means of a new butt-welding technique porous stainless steel filter medium is now available in large sheets. 6" x 18" unit sheets may be joined to form sheets of any required area.

**DESCRIPTION** — In the welding technique a modified form of "Heliarc" (inert gas shielded tungsten arc welding) is used. It is particularly applicable in making up large sheets when the filter material is 0.100" or more thick. Many types of special shapes can be welded from 1/16" thick material. The welds are strong and ductile.

In addition to producing filter sheets of any area, the method permits welding the porous material to solid stainless steel members such as closing rings, flanges, etc. The weld assembled sheets can be shirred, rilled and machined. Within limitations they can be subjected to rolling and drawing operations; and they can be welded again after machining and forming.

MICRO METALLIC CORP., Dept. CP, 193 Bradford St., Brooklyn 7, N. Y.

When inquiring specify CP 4193 — see handy form pages 2-3

Mr. Molecule  
at -150°F

PRODUCTION PROCESSING and  
TESTING at

-150°F  
without DRY ICE  
or LIQUID  
NITROGEN

MODEL  
T-11

Write today for  
**SPECIFICATION & DATA FOLDERS**

Bowser processing, testing, storage or cold treatment of many materials can reduce production costs and maintain product uniformity.

**BOWSER**  
BOWSER INC. — REFRIGERATION DIVISION — TERRYVILLE, CONN.  
IN CANADA, S. F. BOWSER, LTD. • 64 FRASER AVE. • TORONTO, ONTARIO

When inquiring specify CP 4194 — see handy form pages 2-3

2-3

review

When inquiring specify CP 4196 — see handy form pages 2-3

CUTS WET-CUTS DRY  
The NEW 1948  
**CLIPPER**  
**MASONRY SAW**

The Masonry Saw with  
**DUAL CONTROL**

Yes, you can cut wet or dry with equal ease. The new HD-48 Clipper cuts dry just exactly the same as regular Clipper Masonry Saws . . . and for DUSTLESS masonry cutting, just turn the control valve and use the circulating water system.

With the exclusive Clipper design proven throughout the world for 10 years . . . Guaranteed to provide the fastest cutting speed and the lowest cutting cost. You'll be amazed how quickly and easily you can cut virtually any special length or shape from the hardest masonry materials. Clippers save time — save material and assure better workmanship on every job.

**CLIPPERS FOR EVERY JOB**  
Priced as low as \$195. Write for catalog . . . Today!

**YOU CAN HAVE A CLIPPER ON FREE TRIAL**

**CLIPPER CUTS ANYTHING**

**THE CLIPPER MFG. CO.**  
17 EAST 28TH STREET • KANSAS CITY 8, MO.  
Philadelphia • Cleveland • St. Louis • Austin, Tex.

When inquiring specify CP 4195 — see handy form pages 2-3

**Stanzoils**  
Now Grip Under Oil

Easier Work  
For Safe Hands

• Stanzoils' amazing new positive-grip fingers hold wet objects as if dry — new confidence and speed for workers! Sure hand protection in corrosive materials — prevent costly injuries. Made of Pioneer-processed DuPont neoprene, 3 to 7 times longer life than rubber in oils, acids; low cost per hour. Black or white, standard styles, sizes. For more production, buy Stanzoils from your supplier — or write for catalog today.

Synthetic Rubber Division  
**The Pioneer Rubber Company**  
239 Tiffin Road Willard, Ohio, U.S.A.  
New York • Los Angeles

OVER 30 Years OF QUALITY GLOVE MAKING



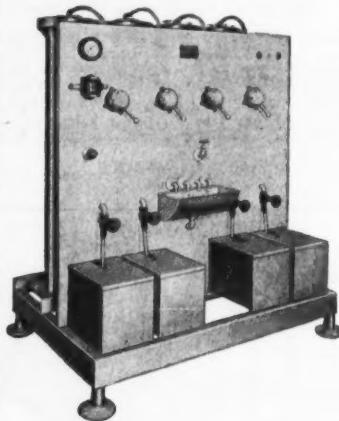
Page 85

# Need **PURE** Water?

## Specify Dependable Barnstead Equipment

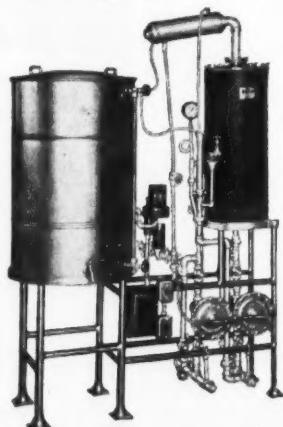
### Specialists in Pure Water Since 1878

Almost 70 years ago Barnstead designed and built the first Automatic Water Still. From that Still to the outstanding new Barnstead "Double-Action" Demineralizer we have had one aim — to produce purer water at lower cost with greater ease. The many Barnstead improvements in design over these years have resulted in a far purer water at a fraction of the original cost. If your requirements for either distilled or demineralized water are from  $\frac{1}{2}$  to 1000 gallons per hour, you can satisfy them best with one of the 200 models and sizes in the complete Barnstead line.



#### BARNSTEAD AUTOMATIC WATER STILLS

Noted for their scientifically correct design, Barnstead Stills give trouble-free operation with a minimum of cleaning and attention. Many Barnstead stills sold over a generation ago are still in daily active service producing water far above the U. S. P. specifications. Special types for hard and soft water and for Pyrogen-free distillate for pharmaceutical houses. Models for heating by steam, electricity, gas, kerosene, or gasoline. Ask for new 1947 Catalog "F".



TRADE MARK REG U. S. PAT OFF  
**Barnstead**  
STILL & STERILIZER CO. Inc.

66 Lanesville Terrace, Forest Hills, Boston 31, Mass.

When inquiring specify CP 4195 — see handy form pages 2-3

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## Processing Equipment

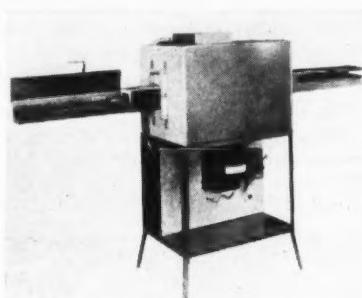
### Tunnel Kiln Useful for Small Production

*Electric heating element gives 2200° F. maximum temperature*

**USES** — Tunnel kiln for small batch production work, firing of ceramic parts, heat treating of small parts on a production basis. Also for experimental or testing work on a small production basis.

**DESCRIPTION** — Electric heating element provides maximum temperature of 2200°F. For immediate operation, simply attach line to fused switch box in the unit.

Small refractory trays are pushed through interior of 33" firing chamber by a variable-speed drive. Firing zone is 10" long. Tray size,  $2\frac{5}{8} \times 3\frac{3}{4}$ ". Pusher mechanism and provision for loading, unloading, are self-contained.



Pusher-type tunnel kiln

Over-all dimensions, 102" long, 62" high, 24" wide. Basic principles are readily applied to larger construction. Of 14 gauge steel with green, baked-on enamel finish. Weight, 700 lbs., complete with automatic temperature control, fused switch box and step-down power transformer. Single phase 110 or 220-volt AC; 2 KW current consumption.

K. H. HUPPERT COMPANY, c/o K. H. Huppert, president, Dept. CP, 6830 Cottage Grove Ave., Chicago 37, Ill.

When inquiring specify CP 4196  
— see handy form pages 2-3

### Open-Mesh Conveyor Belts Aid Draining, Cooling, Spraying

Non-sagging, woven wire conveyor belts for spraying and drying operations, glass, ceramics, chemicals, soaps, foods, rubber, etc., are described and shown in a 4-page bulletin. Bulletin 89.

THE CAMBRIDGE WIRE CLOTH COMPANY, Dept. CP, Cambridge, Md.

When inquiring specify CP 4197  
— see handy form pages 2-3



**INDUSTRIAL  
NoDrip**

### COVER PIPES TANKS, WALLS

*Anyone can brush, trowel or spray NoDrip on any dry, dry surface. Goes on like plaster, forms a seamless protective coating. STOPS CONDENSATION DRIP! NoDrip keeps equipment and floors safe and dry; prevents corrosion of metal and prolongs its life. Acid, alkali and brine resistant. Comes in 1, 5 and 55 gal drums, ready for use.*



**TRY NODRIP**  
Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook

J. W. MORTELL CO. 530 Burch St., Kankakee, Illinois

When inquiring specify CP 4198 — see handy form pages 2-3

### There's a Better Way to Feed Powdered Materials!



**OMEGA  
GROOVE DISC FEEDER**

Eliminate happy-go-lucky feeding methods! Install an OMEGA Groove Disc Feeder and feed exactly the right amount of dry powdered materials. An infinitely variable speed drive maintains any desired feeding rate over a 100 to 1 range at rates from 2 to 400 oz. per hour (60 lbs./cu. ft.). A machined groove

in the feeding disc provides true volumetric measurement of any material of uniform particle size — sea coal, trap rock, hydrated lime, Vinylite, vitamin concentrates, flour, etc.

Write for Bulletin 61-64



**OMEGA PRODUCTS**  
Volumetric Feeders  
Gravimetric Feeders • Solution Feeders • Lime Slaking Equipment • Bucket Elevators • Laboratory Stirrers

**OMEGA MACHINE CO.**

(Division of Builders Iron Foundry)

41 CODDING ST. • PROVIDENCE 1, R. I.

When inquiring specify CP 4199 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

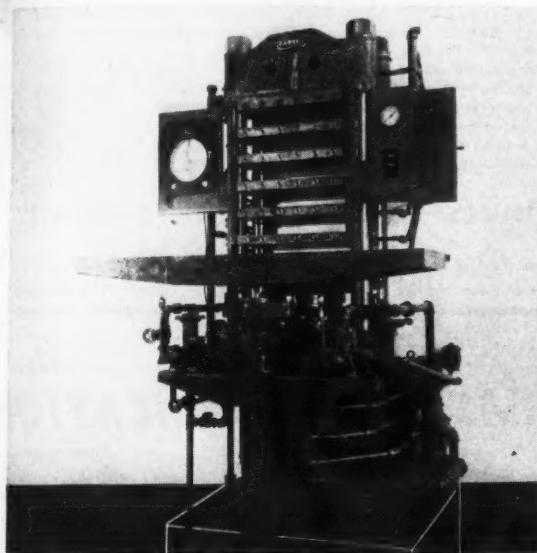
## Compression Press Features Automatic Controls

24 x 24" six-opening hydraulic unit molds rubber and plastics

USES — Hydraulic compression press for molding rubber and plastic articles.

FEATURES — Fast and precise. Sturdily built. Economically operated. Automatically maintains even heat in platens.

DESCRIPTION — 24 x 24" six-opening, with 2000 psi initial pressure, giving plate pressure of 614 psi, or total capacity of 177 tons with maximum deflection over platen area of .005".



24 x 24" six-opening compression press

Pressure pump is motor-driven, radial piston duplex type, equipped with cooler and filter and mounted on fabricated-steel oil tank on floor behind press. Its capacity gives operating speeds-per-minute of 59" closing, 3" pressing and 231" lift table rise. Lift table descends by gravity. Ram operation is by 4-way valve equipped with hand lever, and lift table operates by separate hand lever valve.

Automatic controls include blow-down timer giving intermittent release of condensation from platens. Pressure gauge on panel to right has start and stop buttons beneath it. Platen pressure is set from zero to maximum by adjustment of pump. Temperature control on left panel is connected to condensation chamber, and automatically maintains even heat in platens. It has removable charts for continuous temperature recording.

Top and follower crossheads are cast Meehanite metal; bottom crosshead, integral with cylinder, is steel. Platens are rolled silicon steel, smooth-tool finished on working surfaces and drilled, tapped and plugged for steam circulation. One of a complete line of hydraulic presses ranging from 12" square to 36-1/2" long, for various applications.

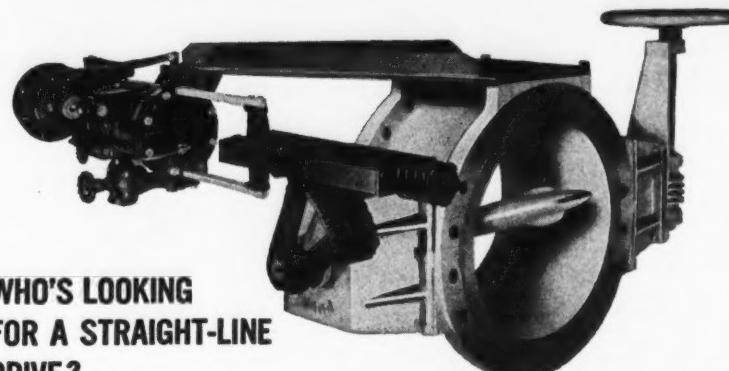
FARREL-BIRMINGHAM COMPANY, INC., Dept. CP, Ansonia, Conn.

When inquiring specify CP 4200 — see handy form pages 2-3

Advertisement



ISSUED PERIODICALLY BY R-S PRODUCTS CORPORATION, PHILADELPHIA 44, PA., FOR THOSE CONCERNED WITH FLOW CONTROL AND SHUT-OFF



### WHO'S LOOKING FOR A STRAIGHT-LINE DRIVE?

Constant 90° angularity between the prime mover and the valve stem . . .

Since 1943 the R-S Type 602 valve has had great success in the service of our customers who want Straight-line drive.

The picture shows a 24-inch 150-pound R-S Cast Steel valve with Series 15 raised face flanges and air-cylinder positioner. Hydraulic cylinders and air diaphragm motors, with or without positioners, are also available. They operate through a chain and sprocket providing straight-line action and eliminating compensation for angularity of bell-crank arm.

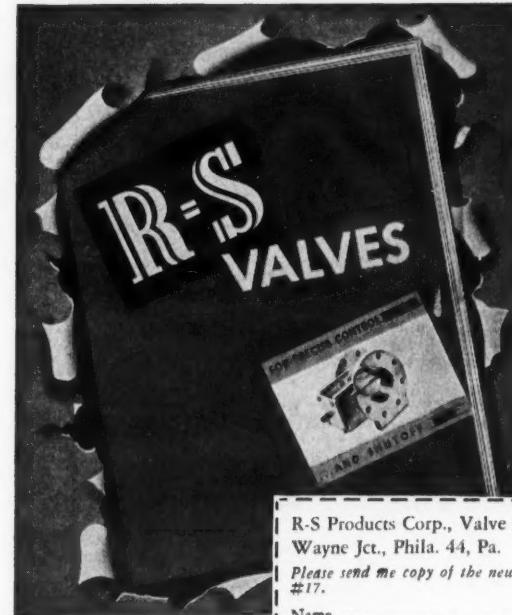
The valve pictured is provided with dual stuffing-boxes which cause the vane to "float" regardless of working pressure in the line. The handwheel and clutching unit for manual control are

mounted opposite to the mechanical control side of the valve.

These R-S valves are available in all sizes for many temperature and pressure ranges.

Send for YOUR copy of the NEW

*R-S Valve Catalog No. 17!*



R-S Products Corp., Valve Division  
Wayne Jct., Phila. 44, Pa.

Please send me copy of the new R-S Valve Catalog #17.

Name \_\_\_\_\_

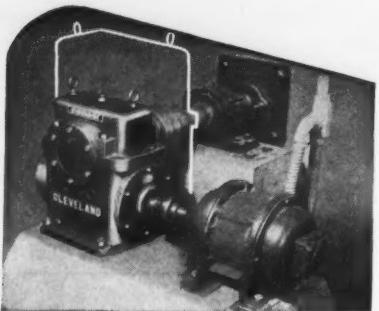
Title \_\_\_\_\_ Company \_\_\_\_\_

Street \_\_\_\_\_ Zone \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Fully descriptive, generously illustrated; includes complete dimensional data on all R-S Valves. Write, wire, or phone: R-S PRODUCTS CORPORATION, Wayne Jct., Phila. 44, Pa.

When inquiring specify CP 4201 . . . see information request blank, pgs. 2-3



As the white outline indicates, a standard unit of much greater frame size would be required to do the work of Speedaire.

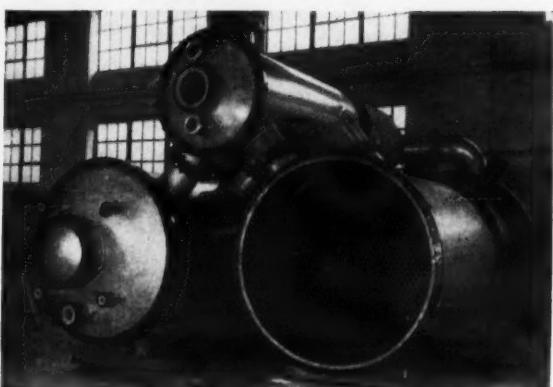
**For more horsepower...in less space... at lower cost...use SPEEDAIRE**

**SPEEDAIRE** is Cleveland's new fan-cooled worm-gear speed reducer. Because it is fan-cooled, Speedaire will do more work—will deliver up to double the horsepower of standard worm units of equal frame size, at usual motor speeds.

It can be installed economically on many applications where other types have been used heretofore—giving you the advantage of a compact right-angle drive. Speedaire gives the same long, trouble-free service characteristic of all Clevelands. Write for Catalog 300 for specifications and engineering data.



When inquiring specify CP 4202—see handy form pages 2-3



## BRIGHTON'S Best!

Designers and Fabricators of complete equipment for the process industries . . . BRIGHTON is your FIRST CHOICE.

Brighton Twin Base Heater 5' diameter 20' long. All copper except steam chest of steel. Approximately 4000 sq. feet of heating surface. Especially designed and built.

CLIP AND MAIL TODAY

BRIGHTON COPPER WORKS, INC.  
CINCINNATI, OHIO  
Gentlemen, without obligation on my part send complete data, catalog on your process equipment.

NAME  
COMPANY  
ADDRESS



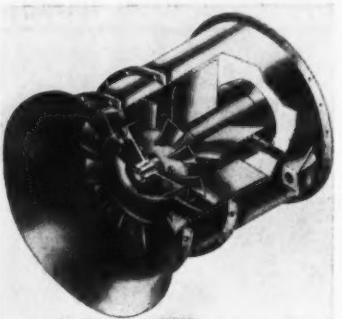
When inquiring specify CP 4203—see handy form pages 2-3

Page 88

## Processing Equipment

### Adjustable-Blade Fans Heat, Ventilate and Air Condition

124 models handle pressure up to 9.60 water gauge, volumes to 100,000 cfm



Adjustable-blade fan

volume and pressure per lb. of fan-and-motor.

**DESCRIPTION** — 124 different models of axial-flow fans, vaneaxial type, for pressures up to 9.60 water gauge and volumes up to 100,000 cfm. Various combinations of 15 different housing diameters, from 18 to 60". Four hub sizes, 16 motor frame sizes, 4 different speeds. Series 1000.

JOY MANUFACTURING COMPANY, Dept. CP, Henry W. Oliver Bldg., Pittsburgh 22, Pa.

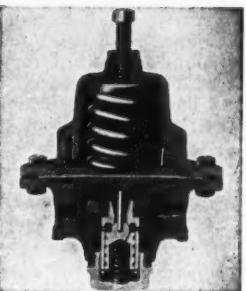
When inquiring specify CP 4204—see handy form pages 2-3

### ACCURATE CONTROL with the DAVIS No. 13 PRESSURE REGULATOR

Built-in Strainer • Single Seat

No Leakage • No Sticking

Self-Contained



HERE is everything you need for good pressure regulation on small steam, air, or gas-operated equipment: Quality construction, accurate control, trouble-free service, low maintenance — And yet the Davis No. 13 Pressure Regulator is priced low enough to be practical for individual installations on unit heaters, presses, jacked kettles, sterilizers, vulcanizers and other small equipment.

Sizes from  $\frac{3}{8}$ " to 2" in bronze, semi-steel, and steel bodies; bronze, monel, or nitrailloy trim. All parts accessible and renewable without disturbing pipe connections. DAVIS REGULATOR COMPANY, 2562 South Washtenaw Avenue, Chicago, Illinois.

Write today for your copy of the Davis Pressure Regulator Service Chart



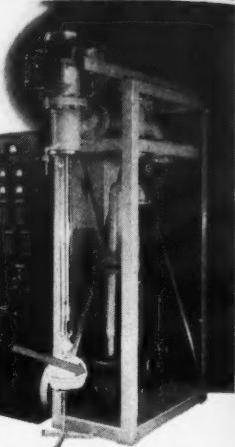
**DAVIS** REGULATOR COMPANY

When inquiring specify CP 4205—see handy form pages 2-3

## ANOTHER PIONEERING VENTURE



### IN THE WORLD OF LOW ABSOLUTE PRESSURES KINNEY HIGH VACUUM PUMPS



In this new high vacuum Rotary Fractionating Still, manufactured by National Research Corporation, Cambridge, Mass., the Kinney Vacuum Pump is an integral part of the compact unit for the fractional separation of liquids at relatively low temperatures. Kinney High Vacuum pumps are widely accepted for dependable low pressure processing in Industry. Their compact design saves floor space and their rapid pump down shortens production time. Kinney Single Stage pumps create and maintain low absolute pressures to 10 microns; Compound pumps to 0.5 micron.

Write for Bulletin V45.

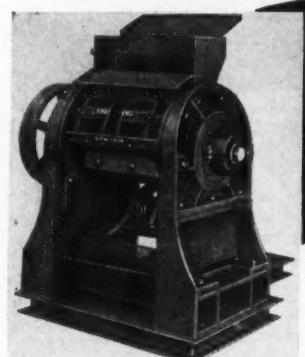
### KINNEY MANUFACTURING COMPANY

3573 WASHINGTON ST., BOSTON 30, MASS.

New York • Chicago • Philadelphia • Los Angeles • San Francisco  
We also manufacture Liquid Pumps, Clutches and Bituminous Distributors.

When inquiring specify CP 4206—see handy form pages 2-3

## FASTER GRANULATION



### WITH ABBÉ Rotary CUTTER

• For Plastics Chemicals—Drugs Paper—Rubber—Etc.

• Granulates—Cuts Shreds—Reduces to Any Desired Particle Size.

• Low Power Cost.

• Fast Screening and Discharge.

### FEATURES

Heavy hardened alloy steel rotary knives.

Cast body, easily opened for cleaning or knife adjustment.

Mounted in outboard roller bearings.

Maximum screening area with perforations of any desired size.

Tight seal baffled feed hopper. Direct motor or V-belt drive. Made in 6 production sizes.

Catalog 45 on request



**ABBÉ ENGINEERING CO.**  
MILLS • BLENDERS • MIXERS • SIFTERS  
46 CHURCH STREET • NEW YORK 7, N.Y.

When inquiring specify CP 4207—see handy form pages 2-3

CHEMICAL PROCESSING Preview

**Processing Equipment**

### Hand-Labels Small Items Quickly

Self-adhesive dispenser handles 1 or 2 rolls totaling 1½" wide

**USES** — Label dispenser for faster hand labeling of small items. For use with manufacturer's self-adhesive labels. Where different kinds of labels are used, several dispensers may be placed in compact row. For dispensing individual labels.

**FEATURES** — Quick and convenient, reducing labor costs. Labels apply



Self-adhesive label dispenser

without moistening. Tests by manufacturer are said to show that an operator, using this dispenser, can easily label small items with one hand. Self-threading feature permits rapid loading, refilling, in two quick steps.

**DESCRIPTION** — Each dispenser handles one roll of Kum-Kleen labels up to 1½" wide, or two rolls totaling not more than 1½" wide. To operate, pull glassine tape which carries labels, and an individual label pops out, ready for use without moistening.

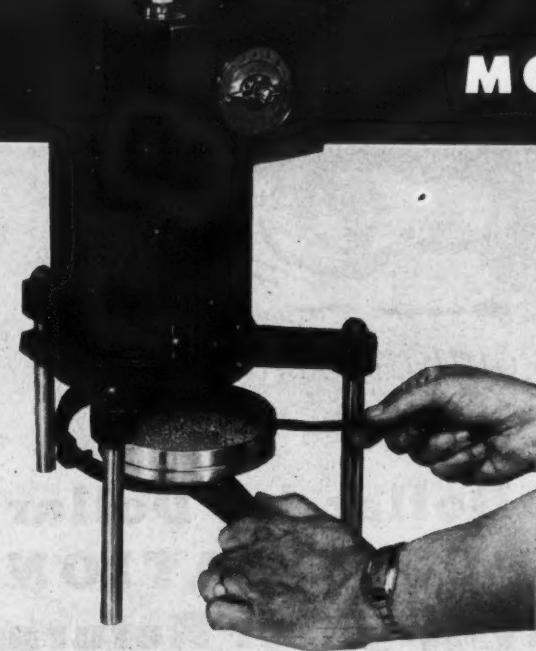
To load or refill, place roll, or rolls, in dispenser with loose end of tape at top. Removable metal slide at front of dispenser is then slid into place with tape extending over top edge so that gentle pull will release label. Dispenser shell is mahogany-finished plastic. Metal slide is stainless steel. Two rubber strips at base prevent slipping. Unit is about 4" high, 2" wide, 6½" long, tapering to 2" long at top.

AVERY ADHESIVE LABEL CORPORATION, Dept. CP, 36 W. Union St., Pasadena 1, Calif.

When inquiring specify CP 4208  
— see handy form pages 2-3

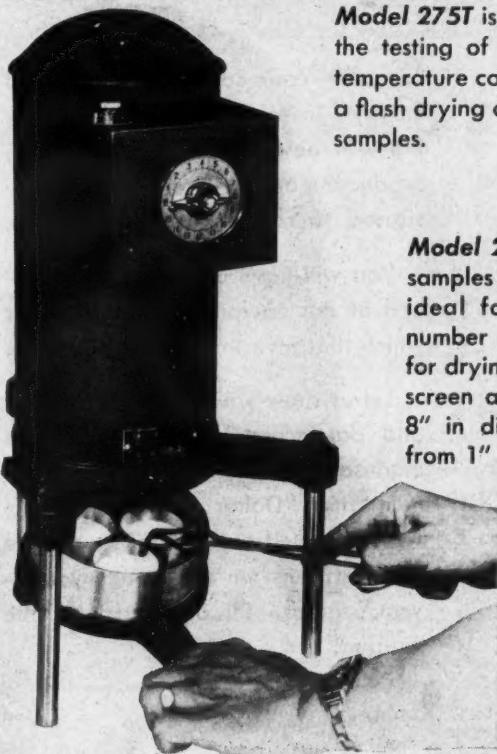
For more information on product at right, specify CP 4209  
— see information request blank between pages 2-3.

# FLASH-DRY SAMPLES TO DETERMINE MOISTURE CONTENT

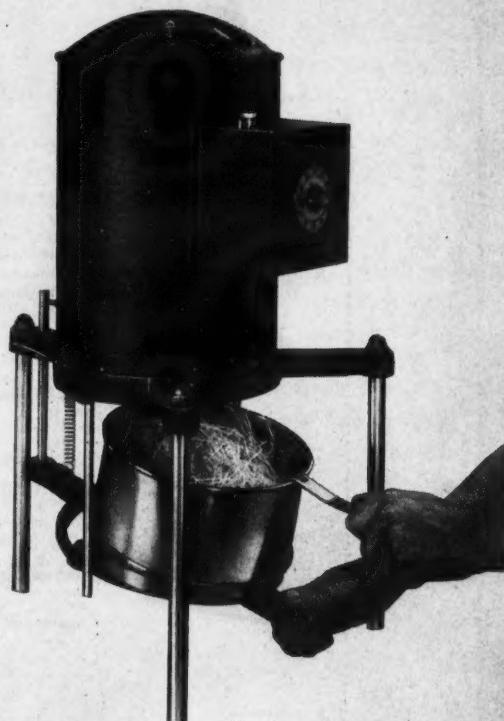


A complete line of Dietert-Detroit Moisture Tellers is available for the rapid, accurate moisture determination of such substances as chemicals, foods, fabrics, grains, sands, fuels, clays, semiliquids and others.

**Model 275** is designed for materials not sensitive to drying temperatures. It has a drying pan 5" in diameter holding up to 100 gram samples.



**Model 275T** is used for all substances, the testing of which requires precise temperature control. It may be used as a flash drying oven for liquids or small samples.



**Model 278T** is used for bulky samples up to 500 grams. It is ideal for handling a large number of liquid samples and for drying materials in the wet screen analysis. The pans are 8" in diameter and may be from 1" to 4" in depth.

Write for descriptive folder and prices.

2897

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9330 ROSELAWN AVE., DETROIT 4, MICHIGAN  
**SAND • MOLD • MOISTURE • SULFUR • CARBON**



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OIL PURIFICATION  
Will Pay Highest Return  
on the Money You Invest**

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- Machine Tool Soluble Oil Coolant (Ford Motor Company, Detroit, Mich. Motor Building Plant—precision motor parts.)
- Cutting Oil (Wagner Electric Corporation, St. Louis, Mo. Manufacturers of electric motors and parts, transformers, industrial and automotive hydraulic brakes, etc.)

Please send me data on oil purification  
for \_\_\_\_\_ operations. (Fill in)

NAME \_\_\_\_\_

COMPANY \_\_\_\_\_

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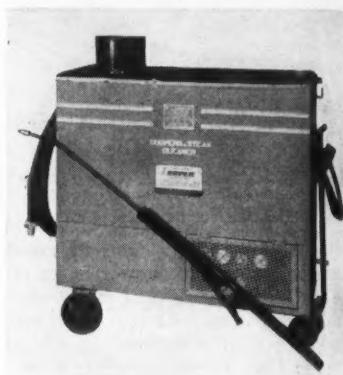
**Sterilizes and Cleans  
in One Operation**

*Portable steam cleaner cuts  
grease from walls, vats*

**USES** — Automatic steam cleaner for sterilizing and cleaning. For cutting grease from floors, walls, racks, equipment, vats, containers.

**FEATURES** — Portable and easily moved to any part of plant. Sterilizes and cleans in one operation.

**DESCRIPTION** — 100 lbs. steam pressures. Burns fuel oil or kerosene. Once set for desired pressure, it operates automatically without attention until operation is completed. Hourly fuel consumption, 2



Automatic steam cleaner

to 3 gals. of oil. Fuel tank capacity, 11 gals.; compound tank, 15 lbs. Unit capacity, 100 gph.

Special design passes compound to heating coils without entering pump, increasing pump efficiency and eliminating check valves. Construction permits full operation of unit with only 2 valves.

Sootless atomizing down draft burner, all operating parts in 1 sub-assembly, flash-type individually-wound heating coils. Working pressure in less than 2 minutes. Water pump operates with water delivered to machine under pressure, or will suck water from any source.

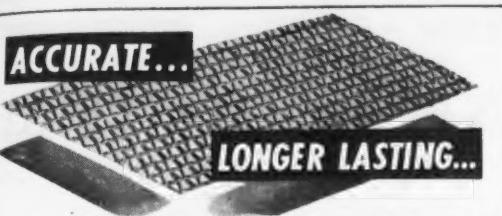
D. C. COOPER COMPANY, Dept. CP  
1467 S. Michigan Ave., Chicago 5, Ill.

When inquiring specify CP 4210  
— see handy form pages 2-3

For more information on product at left, specify CP 4211  
— see information request blank between pages 2-3.

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### NON-PRIMING DRUM PUMP

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And this pump stops evaporation losses. A lift of the handle drains pump and automatically seals contents inside.

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When inquiring specify CP 4213 — see handy form pages 2-3

FEBRUARY, 1948

## Processing Equipment

### Variable Pitch Sheave Has 20 Threads for Finer Adjustment

**USES** — Useful for a wide variety of fractional horsepower drives.

**FEATURES** — Solid steel construction insures minimum run out. A positive locking device insures firm fastening to shaft.

#### DESCRIPTION

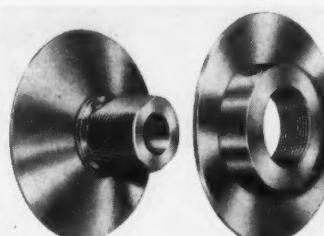
— Available in the following range of pitch diameters:

Using No. 2 FHP Belts	Using No. 3 FHP Belts
1.9" to 2.9"	2.4" to 3.2"
2.4" to 3.4"	2.7" to 3.7"
2.8" to 3.8"	3.1" to 4.1"
3.4" to 4.4"	3.7" to 4.7"

All sizes of sheaves will be available in three standard bores, namely,  $\frac{1}{2}$ ", and  $\frac{3}{4}$ ". The  $\frac{1}{2}$ " bore sheave is provided with set screw only but the  $\frac{5}{8}$ " and  $\frac{3}{4}$ " bore sheaves have both keyway and set screw.

DODGE MANUFACTURING CORPORATION, Dept. CP, Mishawaka, Ind.

When inquiring specify CP 4214 — see handy form pages 2-3



Fractional horsepower variable pitch sheave

### LENAPE MANWAY NECKS FOR HOODED CHLORINE TANKS



Typical of the versatility of Lenape Press Forged products is this 18" manway of silicon killed steel with special 37" O.D. flange. In addition to standard bolting, an outer circle of holes has been tapped to attach the hood or dome.

Lenape seamless necks, nozzles, and other pressure vessel fittings are produced in a complete range of sizes to code or private specifications in carbon steel, alloy steels, stainless, and other alloys.

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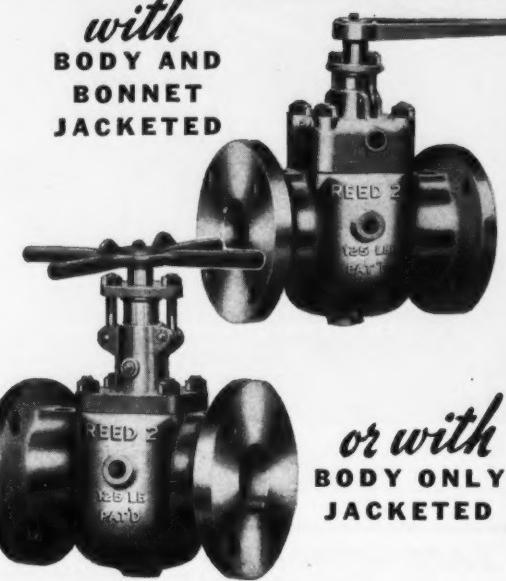
Quotations will be given our immediate attention — Bulletin 4-61 and current price schedule M-47 will be sent upon request.

LENAPE HYDRAULIC PRESSING & FORGING CO.  
DEPT. 100  
WEST CHESTER, PA.  
RED MAN PRODUCTS

When inquiring specify CP 4215 — see handy form pages 2-3

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with  
BODY AND  
BONNET  
JACKETED



or with  
BODY ONLY  
JACKETED

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VALVE DIVISION  
of the REED ROLLER BIT COMPANY  
P. O. DRAWER 2119  
HOUSTON 1, TEXAS

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**PERMANENT MIXERS**  
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Model No. 110. Now ready.

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When inquiring specify CP 4217—see handy form pages 2-3

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**Carboy Tilter used in Conjunction with Carboy Drainer**

**Features:**

- Made of hard, acid-proof rubber.
- Soft rubber cuff permits drainer to be attached to carboys.
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- Prevents accidents caused by splashing and carelessness.
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- Air vent eliminates pumping or siphoning.

Send for Literature, Dept. CP

**Carboy Drainer Available in 5 to 15 Gal. Sizes**

1. Outside Diameter (1½" to 2½")  
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Specify Size When Ordering

**WAHLERT PRODUCTS CORP.**  
INDUSTRIAL SAFETY AND FIRE EQUIPMENT  
27 LAFAYETTE ST., BROOKLYN, N.Y.

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## Discussed in This Issue - - -

# MACHINERY, EQUIPMENT and MATERIALS



Use this "quick-locator" when you want information on a specific type of machine, equipment or material. Everything discussed in this issue is given here, with page references. After checking the information here, if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the Publisher . . . no obligation or charge, of course. The Publishers contact the proper manufacturers for you . . . information comes to you direct.

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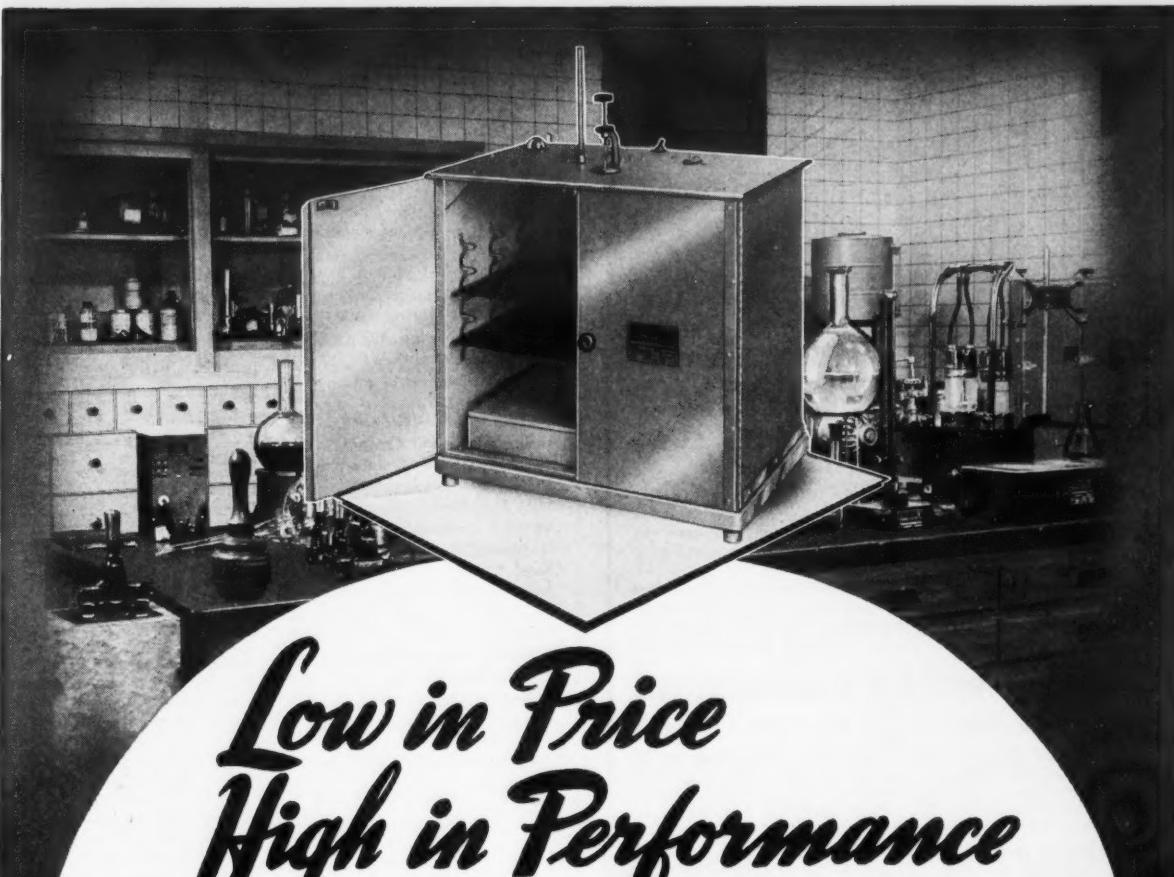
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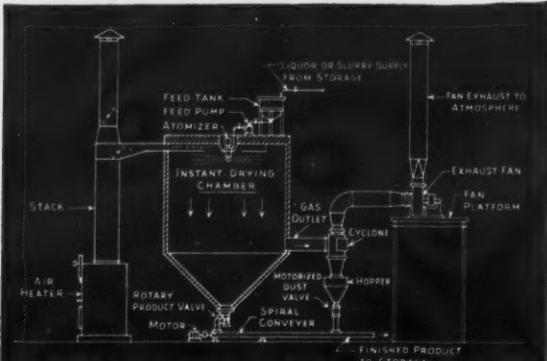
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# Precision Scientific Company

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- Less power and a smaller connected load required.
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- Large capacity, rugged construction.
- Requires a minimum of labor and attention (one man can supervise the operation of a battery of several Instant Drying units per shift).

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### INSTANT DRYING CORPORATION

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Testing and Research Laboratories at Poughkeepsie, N.Y.  
Engineering by CLARK, MACMULLEN & RILEY, INC., New York

When inquiring specify CP 4220—see handy form pages 2-3

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IT!**



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Flexrock offers a new plastic repair material which is ready for traffic almost the moment it's put down. There is no waiting. Simply shovel INSTANT-USE into the hole or rut—tamp—and your floor is restored to solid smoothness. Tough INSTANT-USE bonds tight to old concrete, makes long-lasting heavy duty patch. Withstands extreme loads. Keep a drum on hand for emergencies. Immediate shipment.

**MAIL COUPON for FREE TRIAL OFFER**



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Name \_\_\_\_\_  
Company \_\_\_\_\_  
Address \_\_\_\_\_

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## "That's Interesting"

### Seek Uses for Charcoal Dust

A manufacturer of wood charcoal (Geo. Oravetz & Son, Inc., Auburn, Wash.) accumulates large tonnage of charcoal dust in screening of sized products. Average analysis: Fixed Carbon 80.45%; ash 0.45%; volatile matter 16.40%; average moisture 2.70%; nitrogen 0.34%; potash 0.79%; phosphoric acid — trace.

\*

### Hot Water in Four Seconds

The Public Service Committee of the Tea Association is now working on a device that will boil ten to fifteen cups of fresh water in four seconds.

\*

### Aluminum Household Refrigerator Filter

Refrigerator air filter is made of aluminum and packed with activated carbon pellets. Measurements are approximately 12 in. x 6 in. with width of little over 1 in. Made by Presco Co., Kansas City, Mo.

\*

### Butter Has Melting Point of 105 Degrees F.

Butter which melts at 105 F. and keeps for long periods without refrigeration is produced by a new process carried out in stainless steel equipment. It is spreadable as conventional butter at room temperature and contains diacetyl, hydrogenated peanut oil, skim milk powder, and other products. (USI Chemical News)

\*

### "Brush You Off, Suh —?"

A whisk broom that utilizes static electricity is said to effect magnetic action that draws dirt from fabric. The Whisk-Off brush is all plastic from handle to bristles. (Made by Modglin Co., Los Angeles.)

\*

### Institute of Numerical Analysis Established

The Institute of Numerical Analysis at the University of California at Los Angeles is the newest unit of the National Bureau of Standards. One of the giant high-speed electronic computing machines, now under development at the Bureau, is to be installed.

These computers solve problems in minutes that heretofore have taken days to work out. The machines can conceivably revolutionize the field of applied mathematics.

The Institute has two primary functions. The first is research in applied mathematics aimed at developing methods of analysis which will extend the use of the high speed electronic computers. The second is to act as a service group for Western industries, research institutions, and government agencies.

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